

AGENDA
Education Oversight Committee
Monday, February 11, 2019
1:00 PM
Room 433, Blatt Building

I. Welcome and Introductions..... Mr. Neil Robinson

II. Approval of Minutes of December 10, 2018 Mr. Neil Robinson

III. Election of Chair and Vice-Chair Mrs. Barbara Hairfield

IV. Special Reports:

FY 2017-18 and FY 2018-19 State-Funded Full-day 4K Report
Bunnie Ward and Contributions by RAND Corporation and University of SC

Bob Couch
VICE CHAIR

Terry Alexander

An Evaluation of Algebra Nation in South Carolina, 2017-2018
Dr. Edwin Dickey

April Allen

Raye Felder

Barbara B. Hairfield

eLearning Pilot Districts Project, Initial Report to the EOC
Dr. Lee D'Andrea

Greg Hembree

Kevin L. Johnson

Dwight A. Loftis

Supporting School Improvement in South Carolina's Lowest Performing Schools
Dr. Latoya Dixon, Director, Office of School Transformation, SCDE

John W. Matthews, Jr.

Henry McMaster

Brian Newsome

V. Subcommittee Reports:
Academic Standards and Assessments Mr. Neil Robinson

Neil C. Robinson, Jr.

Molly Spearman

John C. Stockwell

Action Item: Amendments to Accountability Under ESSA for School Year 2018-19

Patti J. Tate

Scott Turner

Ellen Weaver

VI. Executive Session for Receipt of Legal Advice

Melanie D. Barton
EXECUTIVE DIRECTOR

VII. Adjournment

SOUTH CAROLINA EDUCATION OVERSIGHT COMMITTEE

Minutes of the Meeting

December 10, 2018

Members Present: Neil Robinson, Chair; Dr. Bob Couch, Vice-Chair; Rep. Terry Alexander; April Allen; Anne Bull; Rep. Raye Felder; Barbara Hairfield; Senator Greg Hembree; Senator Kevin Johnson; Rep. Dwight Loftis; Senator John Matthews; State Superintendent of Education Molly Spearman; Patti Tate; Dr. Scott Turner; and Ellen Weaver.

EOC Staff Present: Dr. Kevin Andrews; Melanie Barton; Hope Johnson-Jones; Dr. Rainey Knight; Bunnie Ward; and Dana Yow.

Mr. Robinson welcomed members and guests to the meeting.

Mr. Robinson asked Mrs. Barton to pass out information to the members regarding the November 29 release of the school and district report cards. In addition, Mrs. Barton provided a summary of the twelve regional workshops for principals and district/school personnel. The summary identified questions and concerns raised by principals regarding the new joint accountability system.

The minutes of the October 8, 2018 meeting were approved as distributed.

Mr. Robinson then introduced two successful businessmen, Ben Navarro of Charleston and George Johnson of Spartanburg, who have created the Meeting Street Academy model. The model is based on providing at-risk students: extra time with students beginning their schooling as early as age three or four; family partnerships with families expected to collaborate with teachers and volunteer in school; holistic education including extended day and year-round calendar, medical and dental screening, healthy meals and exercise; and exceptional teachers supported by coaching, embedded professional development and rewards for excellence.

Mr. Navarro described for the Committee the success of the 1,200 students attending Meeting Street schools as compared to students in other schools in the state and in the Charleston County School District, focusing on the achievement gap closures made by students attending Meeting Street schools. Mr. Navarro noted that South Carolina is failing to produce college-ready students across the board and is significantly underserving its African-American students. While education spending has nearly tripled nationally in the past 45 years, there has been little impact on academic performance as measured by the National Assessment of Educational Progress (NAEP), and confidence in public schools is at an all-time low.

Mr. Johnson commented on the culture of excellence at Meeting Street Schools, emphasizing the role of teachers and school leaders. There are two teachers per

classroom, an experienced teacher who is coaching a novice teacher. For the 41 hires made last year, Meeting Street Schools received over 1,900 applications. Regarding leadership, Mr. Johnson noted that there is an operational leader in the school and an instructional leader, focusing the energy and attention of the individuals on specific tasks. Behavioral issues are not an issue because of the core values emphasized and the strong parental involvement. Mr. Navarro noted that the cost of the model is \$599 more per pupil than the existing funding level for elementary schools in the district but the results are significant.

Mr. Robinson expressed his appreciation for the presentation and then opened the meeting for questions. Rep. Felder asked about the pay scale used. Mr. Navarro responded that teachers are paid for the extended school year and receive pay for performance. Rep. Alexander asked about the issue of access versus achievement. Mr. Navarro responded that Meeting Street Schools actively recruit and assist parents in getting access to their schools as well as to academic magnets in the district. Rep. Alexander asked if there were any data on how existing Title I schools spend their revenues. Superintendent Spearman noted that the legislation authorizing districts to have a school of choice has been interpreted by the Attorney General to mean that districts cannot have more than one school of choice, a policy that the General Assembly may want to address in legislation.

Rep. Loftis asked about the process for creating new Meeting Street Schools. Mrs. Weaver asked for clarification about the \$599 per pupil cost of the Meeting Street Model and how those funds are expended. Dr. Turner echoed the position that the quality of teachers and leaders in a school or district have the largest impact on student outcomes. Superintendent Spearman added that leaders also include members of local school district boards. Mr. Navarro concluded by empathizing that protecting the status quo is unacceptable insanity.

Subcommittee Reports:

Academic Standards and Assessment Subcommittee: Mr. Robinson noted that the only action item from the Academic Standards and Assessments Subcommittee is an item related to the draft social studies standards. Mr. Robinson explained that in December of 2016 the EOC completed its cyclical review of the social studies standards. The Committee adopted a report with recommendations for amending the standards. In June of 2017 the South Carolina Department of Education (SCDE) assembled a writing team to begin the task of writing new social studies standards. In December of 2017 SCDE posted draft standards and conducted a public comment period. There was significant feedback contained and the Department again revised the standards.

Mr. Robinson explained that the proposed social studies standards were given first reading by the State Board of Education on November 13, 2018. Mr. Robinson recognized Dr. Knight, who reviewed the draft standards against the 2016 recommendations of the EOC and compared them with social studies standards in other states.

After reviewing and considering the draft standards, the Subcommittee recommended to the full EOC the following:

1. Approval of the high school social studies standards as written.
2. Approval of the grades 4-8 standards as written contingent upon the Department creation a progression of the four social studies skills (history, economics, geography and civics) across these grade levels as was developed for K-2. The progression should be developed prior to implementation of the standards. The progression should clearly articulate for teachers the social studies skills that students should develop competencies in at each grade level and across grade levels. The progression could be accomplished in multiple ways: included in the grade-level standards; addressed in an appendix to the standards document; or included in the supporting document. To be consistent with the current English language arts (ELA) and mathematics standards, the progression should be included in the standards document. While the progression is being developed, SCDE can develop professional learning opportunities for grades 4-8 and the assessments for grades 5 and 7.
3. For grades K-3, the Subcommittee recommends that the standards not be approved as drafted and instead the Subcommittee provides the following suggestions for improving the standards:

While the focus of the key concepts of the four social studies skills is appropriate and essential to prepare students for the higher cognitive demands in grades 4 and beyond, the essential content, alignment and rigor of the standards need to be improved and the foundations of democracy more clearly articulated in the standards. The EOC would recommend that the standards for K-3 be revised to create a strong foundation in the four social studies skills accordingly:

- a. Increase the cognitive demands as proposed in other state standards in Georgia, North Carolina, Ohio, Florida, Maryland and Wisconsin.
- b. The K-2 standards should include more information on foundations of democratic principles including symbols, events, people and practices associated with United States government; skills and attitudes of being a responsible citizen; and rights and responsibilities of individuals and groups. K-2 standards should also be reviewed to eliminate redundancies in standards across grades. Some of the standards that focus on instructional practices rather than on skills and knowledge should be revised. An example is Standard 2.E.3 – “create a simple budget and articulate the priorities using economic terms such as expenses, income, and savings.”

- c. The grade 3 standards are titled *South Carolina and World Geography*; however, the content is overwhelming world geography. The recommendation would be that the grade 3 standards be revised around the four social studies skills (history, economic, geography and civics & government) with an emphasis on South Carolina. Teachers could be given flexibility to teach these skills using examples from the past or present in South Carolina. For example, students could learn competencies in civics & government by learning about the relationship between state, federal and local governments. They could learn geography by learning the key landforms in South Carolina. Skills in economics could be learned by looking at the local, state or national current businesses in South Carolina (agricultural, high tech manufacturing, etc.) Teachers could then ask students to analyze and compare the economic, political, geographic or historical differences within South Carolina, between South Carolina and other states or even between South Carolina and other countries.
4. The EOC should recommend that SCDE develop a strong supporting document for teachers while also providing high quality professional learning opportunities. These standards focus less on rote memorization and more on critical thinking. As was the case with the Fordham Institute's review of our English language arts (ELA) standards, such supporting documents are crucial to assist teachers and improve learning. Furthermore, fewer school districts have dedicated social studies coordinators to provide technical assistance and support to classroom teachers. While SCDE will provide professional learning opportunities to teachers, a very small percentage of teachers will be able to participate in the training. A strong supporting document would ensure that all teachers have access to the information. A strong supporting document would include information on the progression of skills as well as guidance on such issues as the following. Several indicators ask students to be able to "analyze multiple perspectives of economic, political and social developments." Giving teachers optional examples of what constitutes multiple perspectives without specific examples of names would be most beneficial to teachers.
5. The EOC should recommend that in the future, especially during the upcoming revision to the South Carolina science standards, that SCDE consider hiring a consultant to assist the standards writing teams with guidance on writing the standards with common language across grade levels. Having consistency across grade levels is crucial to teachers who may move from one year to the next across grade levels.

Since the recommendation comes to the full EOC by the subcommittee, Mr. Robinson reminded the members that the recommendations do not need a second. Mr. Robinson opened up the floor to questions. Mrs. Hairfield noted that the social studies standards are the key to ensuring that students graduate civic ready. While she would have preferred a stronger emphasis on civic readiness in the standards, she supported the subcommittee recommendations. Sen. Matthews asked how the teaching of African-American history had been handled in the standards. Superintendent Spearman asked Dr. David Mathis, Deputy Superintendent for College and Career Readiness at SCDE, to address Sen. Matthews' question. Dr. Mathis explained that the supporting documents that will be produced will give teachers guidance on how to teach African-American history. Dr. Turner moved to approve the subcommittee recommendation. Sen. Hembree seconded the motion. The Committee voted unanimously to approve the recommendation.

EIA and Improvement Mechanisms Subcommittee: Dr. Couch explained that pursuant to Section 59-6-10, the EOC is required to "review and monitor the implementation and evaluation of the Education Accountability Act and Education Improvement Act programs and funding" and to "make programmatic and funding recommendations to the General Assembly. All EIA-funded programs submitted program and budget reports to the EOC. Using these reports along with public hearings on October 29, the Subcommittee is recommending the following budget and proviso recommendations:

First, the EIA penny sales tax is projected to generate \$853 million in FY2019-20, which is a \$16.2 million increase above the current EIA budget. In the current fiscal year, the EIA budget is projected to have a shortfall of \$8.4 million. Of the \$16.2 million in available new money, approximately \$15,404,235 will be needed to support the operation of the public charter schools authorized through the SC Public Charter School District and the Erskine Charter Institute for increased student enrollment and new schools. There simply is not enough money for an increase in the per pupil funding levels. The second item is a \$417,544 increase for special schools for teacher salary increases. Finally, a total of \$2,450,000 is needed just to annualize funding for industry certifications. Of this amount, the Subcommittee only had an additional \$420,221 in EIA funds. The balance will have to come from recurring or non-recurring General Funds.

The Subcommittee also included several recommendations to the Governor and General Assembly for addressing two critical issues: (1) ensuring students graduate with world-class knowledge, skills, and characteristics to be college and/or career ready; and (2) the recruiting and retaining of teachers. The Subcommittee recommended either general fund or any additional EIA revenues to be used for the following:

Computer Science - \$1,050,000 which includes \$750,000 to SC Department of Education for professional development and \$300,000 in non-recurring funds for partnerships among USC, The Citadel and Lexington 1 to establish a statewide regional network to support teachers.

Arts Curricula – increase of \$250,000

Two provisos related to adding Cambridge International exams to allow for reimbursable assessment expenses

Among the recommendations for increasing the pipeline into teaching and retaining more teachers during the first 5 years, the Subcommittee recommended consideration of:

- Increasing the starting salary from \$32,000 to \$35,000 costs an additional \$59.0 million;
- Funding Pro Team, teacher Cadet and Teaching Fellows at the Center for Educator Recruitment, Retention and Advancement at \$1.0 million;
- Funding partnerships between institutions of higher education and school districts is projected to cost: \$627,869 and expanded each year for the next two years;
- Increasing the number of Teaching Fellows from 200 to 225 at \$600,000; and
- Creating a STEM Teacher Fellows Program at an initial \$250,000.

Rep. Alexander asked for clarification about the increase for the Teaching Fellows program. Sen. Hembree inquired about the number of new charter schools to be opened in school year 2019-20. Sen. Matthews asked about the cost of increasing the starting teacher salary. Sen. Matthews also asked if the state is allowing underperforming charters to expand. Superintendent Spearman replied that seven of the thirteen high schools on the list for Comprehensive Support and Intervention (CSI) are charter schools who have low graduation rates. Rep. Loftis asked how long schools are on the CSI list. Superintendent Spearman confirmed that it is for three years.

The Committee then approved unanimously the budget and proviso recommendations.

Finally, Mr. Robinson called upon Dr. Knight and Dr. Ed Dickey who provided an overview of Algebra Nation to address the following questions: (1) what is Algebra Nation; (2) how has it been implemented in South Carolina; and (3) what is the scope of the evaluation being conducted. The results of the evaluation will be provided to the EOC in January of 2019.

There being no further business, the meeting adjourned.

EDUCATION OVERSIGHT COMMITTEE

Date: February 11, 2019

ITEM

FY2017-18 and FY2018-19 State-Funded Full-day 4K Report

PURPOSE/AUTHORITY

Provisos 1.58 and 1A.29 of the 2018-19 7 General Appropriation Act

Of the funds appropriated, \$300,000 shall be allocated to the Education Oversight Committee to conduct an annual evaluation of the South Carolina Child Early Reading Development and Education Program (CERDEP) and to issue findings in a report to the General Assembly by January fifteenth of each year. To aid in this evaluation, the Education Oversight Committee shall determine the data necessary and both public and private providers are required to submit the necessary data as a condition of continued participation in and fund of the program. This data shall include developmentally appropriate measures of student progress. Additionally, the Department of Education shall issue a unique student identifier for each child receiving services from a private provider. The Department of Education shall be responsible for the collection and maintenance of data on the public state funded full day and half day four year old kindergarten programs. The Office of First Steps to School Readiness shall be responsible for the collection and maintenance of data on the state funded programs provided through private providers. The Education Oversight Committee shall use this data and all other collected and maintained data necessary to conduct a research based review of the program's implementation and assessment of student success in the early elementary grades.

CRITICAL FACTS

The report addresses the following:

- Final program results for 2017-18 and initial program results for 2018-19 compiled by the EOC staff;
- Analysis of student assessment data from the 2017-18 school year conducted by researchers at the College of Education at the University of South Carolina; and
- Analysis of the costs associated with the state-funded, full-day 4K program compiled by the RAND corporation.

TIMELINE/REVIEW PROCESS

The EOC began collecting data for the report in August of 2018.

ECONOMIC IMPACT FOR EOC

The General Assembly allocated \$300,000 to the annual evaluation. The EOC procured the services of RAND at a cost of \$249,289 and the services of USC at a cost of \$56,415. The EOC contributed \$59,532 out of its operating budget as well towards this report.

ACTION REQUEST

☐ For approval

☒ For information

ACTION TAKEN

☐ Approved

☐ Not Approved

☐ Amended

☐ Action deferred (explain)

FY2017-18 & FY2018-19

STATE-FUNDED FULL-DAY 4K

Annual Report

With contributions from:

*University of South Carolina, College of
Education and RAND Corporation*



**SC EDUCATION
OVERSIGHT COMMITTEE**

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Evaluation of State-Funded Full-Day 4K for Fiscal Year 2017-18 and 2018-19 TABLE OF CONTENTS

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Acknowledgements

The EOC is grateful for two formal partnerships that contributed greatly to the development of this report. The University of South Carolina College of Education evaluation team played a critical role in the collection and analysis of student assessment data and consideration of 2017-18 language and literacy assessments. The RAND Corporation team provided expert analysis of the costs associated with South Carolina's state-funded full-day 4K program. Below is a list of contributors to this report:

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Executive Summary

The General Assembly first created and funded the Child Development Education Pilot Program by a budget proviso in Fiscal Year 2006-07. In 2014 the General Assembly codified the program in Act 284 and renamed it the South Carolina Child Early Reading Development and Education Program. For purposes of this report, the program is referred to as CERDEP or state-funded full-day four-year-old kindergarten. CERDEP provides full-day early childhood education for at-risk children who are four years of age by September 1. In school year 2017-18, eligibility is defined as an annual family income of 185 percent or less of the federal poverty guidelines as promulgated annually by the U.S. Department of Health and Human Services, or Medicaid eligibility. Both public schools and non-public childcare centers licensed by the South Carolina Department of Social Services (DSS) may participate in the program and serve eligible children. The South Carolina Department of Education (SCDE) oversees implementation of CERDEP in public schools and South Carolina Office of First Steps to School Readiness (First Steps) oversees implementation in non-public childcare settings, including private childcare centers and faith-based settings.

Scope of the CERDEP Report

Over time, the General Assembly has tasked the Education Oversight Committee (EOC) with an annual evaluation of CERDEP and has asked recurring questions every year, and occasionally has requested additional information about various aspects of CERDEP. In response, the EOC undertakes its annual evaluation with a strong focus on programmatic results, quality and growth in CERDEP and participation rates for at-risk four-year-old children. For this evaluation, the EOC partnered with RAND Corporation to address also the per pupil cost of CERDEP and how teacher qualifications and professional development affect student readiness and program quality. RAND's services were procured through a formal request for proposal process managed by the State Procurement Office. Due to time constraints and some data challenges, teacher qualifications and professional development will be included in a subsequent report released later this calendar year. This report addresses the following questions:

- Does CERDEP affect young children's learning and their readiness for kindergarten?
- What are the costs of CERDEP program components, and what is the estimated per pupil cost of CERDEP?
- Is CERDEP expanding statewide? Are formal early childhood education programs serving more four-year-olds living in poverty?

Structure of the CERDEP Report

In response to ongoing questions about the cost of implementing CERDEP within school districts and non-public providers, the EOC took a different approach to provide a more expansive review of the CERDEP program. The EOC maintained its partnership with University of South Carolina's College of Education, and this year, the EOC also partnered with the RAND Corporation. USC continues to work with the EOC and provides student assessment analysis for state-funded four-year-old and five-year-old kindergarten. The results of 2017-18 state-funded 4K assessments follow in Section II. RAND Corporation also provides an initial analysis of the per pupil cost of CERDEP, and their analysis is included in Section IV. RAND's cost analysis estimates a

comprehensive per pupil cost that accounts for additional expenses, such as occupancy costs and teacher salary differentials, that are not fully captured in the 2017-18 per pupil reimbursement rate for instruction cost and transportation rates.

EOC staff continue to work with other state agencies and provides (1) final 2017-18 CERDEP Program Results in Section I and (2) preliminary 2018-19 CERDEP Program Results in Section III. In a subsequent report, the EOC will also provide the results of RAND's study of the role of 4K teacher qualifications and professional development in the implementation of CERDEP as a program and effect on 4K students.

Statewide Progress in Four-Year-Olds in Poverty Participating in 4K

In 2017-18, over 36,000 four-year-olds, or 61 percent of all four-year-olds in our state, lived in poverty. Over 17,000 of these children participated in either CERDEP or Head Start; therefore, at a minimum, **48** percent of four-year-olds in poverty in South Carolina received a full-day, publicly funded, education program. The EOC documents that another 7,901 four-year-olds in poverty received either full or half-day early education programs offered by: local school districts who were not eligible to participate in CERDEP or who chose not to participate; and non-public centers operating in non-CERDEP districts for which the child's district of residence could not be determined. With these additional children in poverty served in either a full or half-day education program, approximately **70** percent of four-year-olds in poverty received some, publicly funded educational program. An additional 5,633 children participated in the ABC Voucher program.

Summary of Four-Year-Olds in Poverty Served Statewide, FY 2017-18

	2017-18
Public CERDEP Enrollment	9,789
Non-public CERDEP Enrollment	1,778
Total CERDEP Enrollment	11,567
Total Head Start Enrollment	5,589
Estimated Number of Four-Year-Olds Served by CERDEP or Head Start	17,156
Estimated Number of Four-Year-Olds in Poverty	36,018
Estimated Percentage of Four-Year-Olds in Poverty Served by CERDEP or Head Start	47.6%
Estimated Percentage of Four-Year-Olds in Poverty Not Served by CERDEP or Head Start	52.4%
Four-Year-Olds in Poverty in Non-CERDEP Public 4K	7,592
Four-Year-Old Children served in Non-Public CERDEP in a center operating in a non-CERDEP district	309
Total Number of Four-Year-Olds in Poverty in Formal 4K (CERDEP, Head Start, and Non-CERDEP Public 4K)	25,057
Estimated Percentage of Four-Year-Olds in Poverty Served	69.6%
Total SC Vouchers Provided	5,633 ¹

¹ Child care voucher data are not included in the estimated number of four-year-olds served because it may include children who receive 4K services through another resource, such as CERDEP or Head Start.

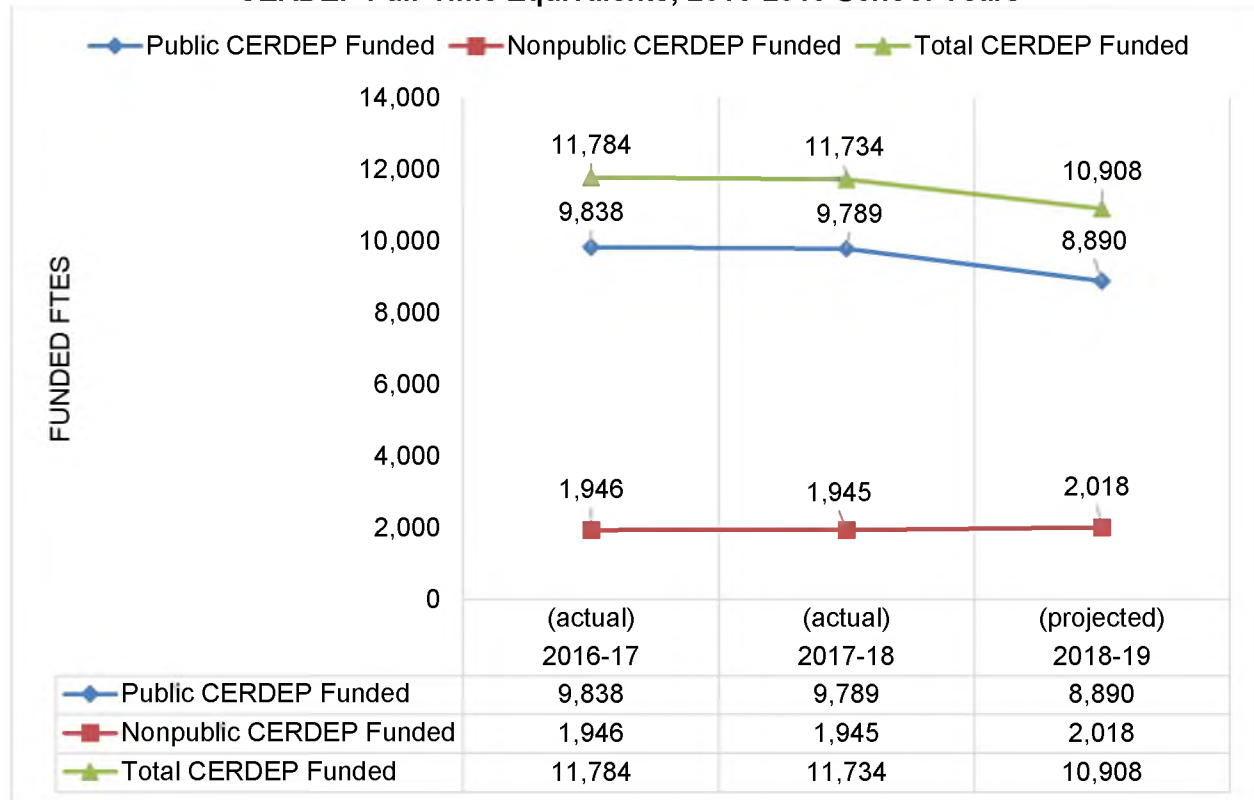
CERDEP Program Update

Chart 1 shows that over the past three years, overall CERDEP enrollment, as defined as the number of children reimbursed at the maximum reimbursable rate, is declining.

For the 2016-17 and 2017-18 school years, CERDEP districts and non-public providers were reimbursed for 11,784 and 11,734 students, respectively. For the 2018-19 school year, the EOC projects that enrollment in the public schools may decrease to 8,890 students based on the 45-day Student Count and an attrition rate of 8.4 percent. The attrition rate recognizes that between the 45-day Student Count and the end of the school year approximately 8.4 percent of children enrolled in CERDEP in public schools have historically left the program. Enrollment in non-public CERDEP is projected to increase by 73 students, which is based on First Steps' projected budget for instructional expenditures. First Steps anticipates funding 2,018 students at the maximum reimbursement rate. This budget figure appears to consider an attrition rate of 11.3 percent for non-public providers and a continuous student enrollment count from August 20 through December 1, 2018 of 2,915. If the projections for 2018-19 are accurate and 10,908 children served by CERDEP will be reimbursed at \$4,510, then over the past three years, student enrollment will decrease by 7 percent.

Chart 1

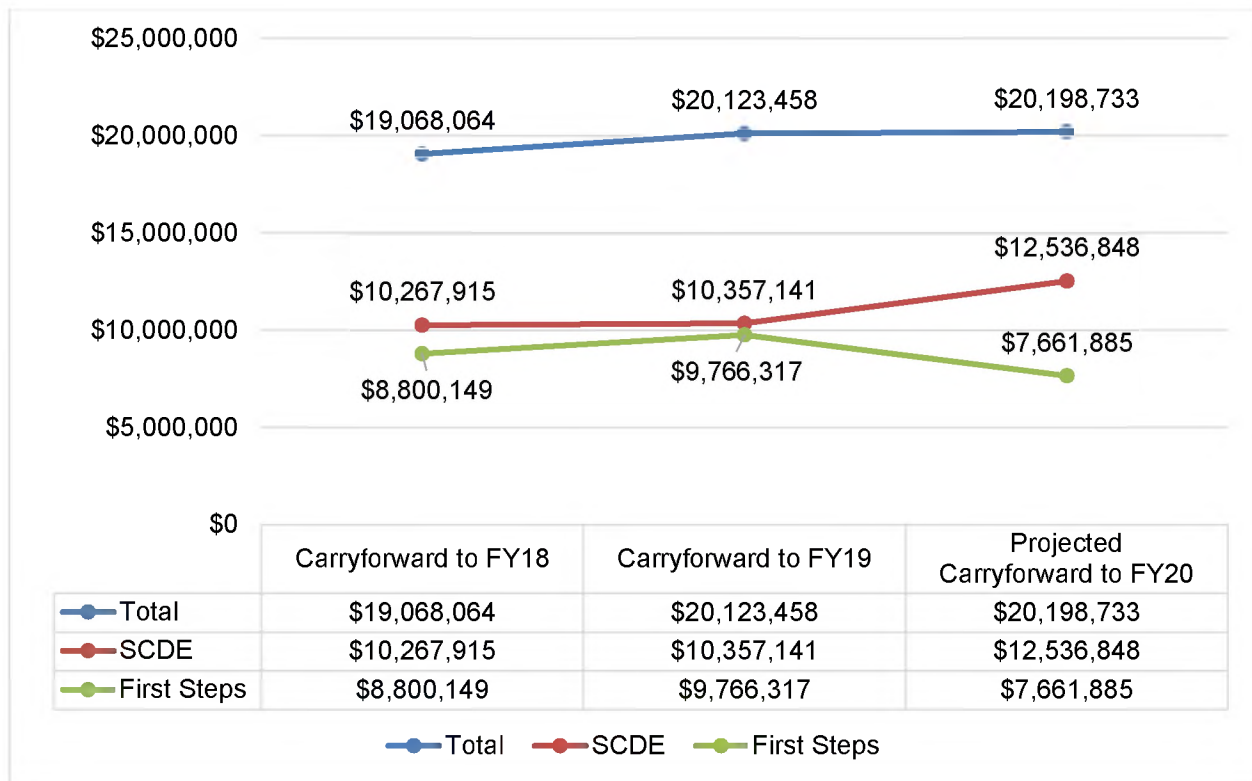
CERDEP Full-Time Equivalents, 2016-2019 School Years²



CERDEP carry forward amounts are provided in Chart 2. Over the past three fiscal years, carry forwards have increased by approximately \$1.1 million despite expansions to fund longer school days or school calendars and to provide summer programs for four-year-olds served in CERDEP. The carry forward from FY2018-19 to FY2019-20 is projected to be \$20.2 million.

² "Full-time equivalent" (FTE) is determined by dividing the total amount of funds expended for instructional funds by the per child maximum reimbursable rate for CERDEP (\$4,510 for FY 2018-19, \$4,422 for FY 2017-18, and \$4,323 for 2016-17).

Chart 2
CERDEP Carryforward Amounts, Fiscal Years 2018-2020



Findings and Recommendations: 2017-18 CERDEP

Finding 1: Additional CERDEP classrooms were added during the 2017-18 school year, but the actual number of children (full-time equivalent) funded decreased from the 2016-17 school year.³

- SCDE reported 25 classrooms and three schools were added during the 2017-18 school year. However, based on SCDE program financial data districts were reimbursed for 9,789 students, a slight decrease in district reimbursement of 9,838 students during the 2016-17 school year.
- Similarly, First Steps reports there were 24 new providers and 28 new classrooms in FY 2017-18; however, First Steps' financial data indicate providers were reimbursed for 1,945 students, which is approximately the same number funded in 2016-17.
- Approximately, 83 percent of children were served in public schools and 17 percent in non-public centers. A total of 11,734 children (full-time equivalents) were funded in CERDEP in public and non-public settings. A total of \$63 million was expended for the

³ A full-time equivalent is determined by dividing the total number of funds expended for instructional services by \$4,422, the per child maximum reimbursable rate. Annual instructional services expenditures were provided by SC Department of Education and SC State Office of First Steps.

program and over \$20 million carried forward from FY 2017-18 to FY 2018-19. Total expenditures are approximately \$7 million higher than in FY 2016-17 yet carry forward funds are also higher in FY 2017-18.

Finding 2: Based on SCDE financial data detailing payments to districts, Appendix A shows CERDEP districts were reimbursed for 9,789 students. Appendix B reports 10,733 students were administered a 4K assessment twice during the school year, at the beginning and end of the school year. These two data sources represent a variance of 902 students, totaling \$3,986,644.⁴ The variance may be due to students who do not participate in CERDEP after the second (end of year) administration of the 4K assessment.

- In Appendix B, no withdrawal date is included in the data, so it is possible a student withdrew or stopped participating in 4K after the second assessment was administered. There are no state guidelines or requirements that require a specific time during which the second assessment must be administered. Appendix C provides a breakdown by district and school of the number of students assessed twice during the 2017-18 school year.
 - Recommendation 1: SCDE and First Steps should determine a period during which the second assessment should be administered to ensure students who are administered a second assessment may be enrolled for the length of the school year.

Finding 3: Approximately 936 children were on district waiting lists in 2016-17, with 189 in Aiken and 100 in Richland 1. These two districts accounted for 30 percent of the children statewide on waiting lists. In 2017-18, based on SCDE's September 2018 data response, there were 148 children on waiting lists, representing a decrease of 84 percent from 2016-17 to 2017-18.

- Recommendation 2: SCDE and First Steps should continue to share waiting lists to ensure all CERDEP-eligible students are enrolled in available slots. Organizations that enroll and serve at-risk four-year-olds (including Head Start, SCDE and First Steps) should also be included. Formal coordination of waiting lists would also increase the number of at-risk children served statewide, which is significant because the number of at-risk children served statewide is estimated to have decreased in 2017-18. However, as of August 2018, First Steps reported no public school CERDEP waitlists for the 2018-19 school year had been provided.

Finding 4: Since both SCDE and First Steps manage CERDEP as separate programs, the expansion initiative in both public and non-public environments was also implemented as separate initiatives by SCDE and First Steps. This disconnected implementation resulted in inconsistencies in the amount of additional CERDEP instruction and reimbursement rates provided by public schools and non-public providers.

- For example, a summer school option lengthened total days of services to 220 days and expanded the summer schedule to eight hours daily. Non-public providers were reimbursed \$24.57 for each day during the traditional school year of 180 days. For the additional 40 days during summer, non-public providers were reimbursed \$32.13. 114 non-public providers operated 124 summer school classes serving 1,258 four-year-olds.

⁴ \$4,422 per pupil multiplied by 902 students.

- However, SCDE's November estimates assumed ten weeks of instruction and up to 8.5 hours per day. Districts were reimbursed at the same rate as for the extended year: \$24.56 (for a 6.5-hour day) to \$34.02 (for an 8.5 hour day) per child. A complete school year with the addition of a summer program could equal up to 230 instructional days. During the 2017-18 summer, 32 districts operated summer school programs for four-year-old children.
 - Recommendation 3: Like the need for additional collaboration and coordination on the student waiting lists, SCDE and First Steps should work together to determine consistent implementation of CERDEP expansion, regardless of the CERDEP environment in which it is implemented.

Finding 5: Students who participate in a CERDEP expansion initiative are not identified at the student level. Student-level identification was not required in Proviso 1.72. Without student-level identification, it is not possible to evaluate the effectiveness of expansion, as measured by student-level performance on the Kindergarten Readiness Assessment.

- Recommendation 4: SCDE and First Steps should develop and implement a student-level identification system so the academic performance of students who participate in CERDEP expansion initiatives may be analyzed over time. This information should be provided to districts, so they can assess the impact of expansion on their students' kindergarten readiness and academic performance in later grades and reported to the EOC as part of their annual CERDEP evaluation.

Finding 6: The estimated size of four-year-olds living in poverty increased slightly from 35,182 in 2016-17 to 36,018 in 2017-18. Approximately 48 percent of four-year-olds living in poverty were enrolled in CERDEP or Head Start, full-time early education programs. If student enrollment in First Steps CERDEP classrooms located in non-eligible CERDEP districts and in public schools that do not participate in CERDEP are included in the statewide calculation, approximately 70 percent of four-year-olds living in the poverty were served by a formal publicly-funded four-year-old program but the program may have been full or half-day. This estimate does not include four-year-olds receiving child care vouchers.

- Head Start enrollment increased from by 27 percent, from 4,395 children in the May 2017 Head Start Census to 5,589 children in the May 2018 census.
- The number of four-year-olds receiving child care vouchers more than tripled during the 2017-18 school year. This data are not included in the number of children in poverty participating in 4K services because children may be enrolled in a 4K program and also receive an SC Voucher for child care before or after normal school hours, artificially inflating the number of students participating in 4K programs.
- Almost 9,800 four-year-old children also participated in other state-funded four-year-old programs that are not part of CERDEP. However, data about these programs are not collected at the state level, so there is no process to understand program characteristics and demographics, such as length of the school day and/or student eligibility requirements for the programs.
 - Recommendation 5: CERDEP guidelines for reporting student enrollment should be implemented for all programs and services for four-year-old children.

As noted in last year's evaluation, student, program and financial data regarding all public 4K programs should be collected and reported at the state level, since only evaluating CERDEP classrooms does not fully account for half of the state's at-risk four-year-old population and the instruction and services they may receive through locally-funded or EIA-funded programs. SCDE should implement uniform data collection procedures for all publicly-funded 4K programs, including those funded by local school districts and the Education Improvement Act. Without a uniform data collection procedure, 4K instruction and services in districts that do not participate in CERDEP are not captured. It is difficult to calculate an accurate estimate of the State's progress in serving all four-year-olds in poverty.

- Recommendation 6: To increase 4K participation across all publicly-funded programs, coordinated enrollment initiatives should be implemented with SCDE, First Steps and Head Start to ensure the maximum number of eligible four-year-olds are enrolled. Where possible enrollment of four-year-olds in district-administered 4K instruction funded by local or EIA funding should also be included. As noted earlier, sharing waitlists across multiple 4K settings may facilitate increased enrollment.
- Finding 7: First Steps CERDEP student enrollment data did not include the district of residence. Therefore, Appendix F includes First Steps CERDEP student enrollment data for districts that are eligible to participate in CERDEP in the calculation of students receiving services. However, 309 First Steps CERDEP students are not included in the calculation because they are enrolled in a First Steps CERDEP class in a district that is not eligible for CERDEP and the district of residence for these students could not be determined.
 - Recommendation 7: First Steps student enrollment data should include the student's district of residence. Inclusion of district of residence would improve the accuracy of the number of CERDEP students served as indicated by their district of residence.

2017-18 4K Assessment Results: IGDIs-EL Findings

Finding 8: As noted in Table 16, teachers administered IGDIs EL to approximately 8,000 prekindergartners in fall 2017 and spring 2018.

Finding 9: Five areas were assessed: 1. Picture Naming, 2. Rhyming, 3. Sound Identification, 4. "Which One Doesn't Belong?" and 5. Alliteration.

Finding 10: When using the combined Strong Progress and Moderate Progress categories, the overwhelming proportion of prekindergartners generally met publisher's spring expected scores on subtests: 1. Picture Naming (90 percent), 2. Rhyming (74 percent), 3. Sound Identification (80 percent), 4. "Which One Doesn't Belong?" (89 percent), and 5. Alliteration (94 percent).

Finding 11: On the spring 2018 assessment, African American and White prekindergartners had similar proportions on most IGDIs-EL subtests. The Rhyming subtest was the exception, with African American children scoring 8 percent lower than White children.

Finding 12: On the spring 2018 assessments, Hispanic children had lower proportions than African American and White prekindergartners on two subtests. With the Picture Naming subtest proportion Hispanic were 19 percent lower than African American and 23 percent below White

prekindergartners. For the Rhyming subtests Hispanic percentages were lower by 11 percent compared to African American and with 19 percent with White children.

Finding 13: Except for Sound Identification, CERDEP and Non-CERDEP students had similar fall and spring assessment results. The Spring testing of Sound Identification exhibited the largest difference in which Non-CERDEP exceeded CERDEP children by a proportion of 6 percent.

Finding 14: Table 19 showed improvements over time for four of the five IGDIs-EL subtests: Picture Naming, Rhyming, Picture Identification, and “Which One Doesn’t Belong?”

Finding 15: Longitudinal results shown in Table 20 a slight increase from spring 2016 to spring 2018 by race. An exception is Hispanic students, who increased by 9 percent on Picture Naming and by 7 percent on Rhyming over the three-year period.

Finding 16: CERDEP and Non-CERDEP students showed slight improvement over the 2016 to 2018 period. Scores were similar between the two groups.

2017-18 4K Assessment Results: PALS-PreK Findings

Finding 17: As noted in Table 22, teachers administered PALS-PreK to nearly 11,000 prekindergartners in fall 2017 and about 10,500 prekindergartners in spring 2018.

Finding 18: When using the combined Exceed Expected Range and Within Expected Range categories, the overwhelming proportion of prekindergartners generally met publishers’ spring expected scores on subtests: 1. Name Writing (92 percent), 2. Alphabet-Upper Case (86 percent), 3. Alphabet-Lower Case (88 percent), 4. Letter Sounds (88 percent), 5. Beginning Sound Awareness (87 percent), 6. Print and Word Awareness (83 percent), 7. Rhyme Awareness (81 percent), and 8. Nursery Rhyme Awareness (87 percent).

Finding 19: For the PALS-PreK by ethnicity African American and White preschoolers had similar proportions of proficiency, excepting Rhyme Awareness, with Whites scoring 9 percent higher.

Finding 20: On the spring 2018 assessments, Hispanic children had lower proficient proportions than African American and White prekindergartners all but one subtest: Name Writing. The proportion of Hispanic children was most discrepant from other groups on the Nursery Rhyme Awareness subtest (13 percent lower than African Americans and 15 percent lower than Whites).

Finding 21: Prekindergartners in CERDEP and Non-CERDEP school districts had very similar proportions in spring 2018, with proficiency rates ≥ 80 percent on all subscales.

Finding 22: Longitudinal PALS-PreK scores were stable across the 2016 to 2018 spring testing for all prekindergarten students.

Finding 23: Scores of PALS-PreK subtests by ethnicity and CERDEP status were stable, with students in the proficient range varying little across time.

2017-18 4K Assessment Results: B3-GOLD Findings

Finding 24: Teachers administered B3-GOLD to approximately 6,900 4K students in fall 2017 and 6,700 4K students in spring 2018. All non-public (First Steps) and some public school 4K students were assessed with B3-GOLD.

Finding 25: Most students scored proficient in the spring, 87 percent on Language and 94 percent on Literacy subtests. The sum of “meet” and “exceed” categories equals the “proficient” category.

Finding 26: On the spring 2018 assessment, all ethnic groupings scored comparably on the Language and Literacy subtests.

Finding 27: Students in Non-CERDEP and CERDEP programs also scored comparably on the Language and Literacy subtests.

Finding 28: CERDEP students in non-public (First Steps) and public classrooms scored comparably on the Language and Literacy subtests.

Finding 29: Because B3-GOLD is a new instrument, it is inappropriate to conduct longitudinal comparison with prior years' TS GOLD results.

Summary of 4K Assessment Findings

Finding 30: Overall, most 4K students met assessment benchmarks in the spring of 2018. Table 33 summarizes the following findings:

- IGDIs-EL:
 - 74 percent of students showed proficient progress on Rhyming, and 94 percent showed proficient progress on Alliteration.
 - The greatest ethnicity gaps were in Rhyming. Hispanic children scored lower than African American children by 11 percent and lower than White children by 19 percent. African American children scored 8 percent lower than White children in Rhyming.
 - CERDEP and Non-CERDEP students scored similarly in all areas.
 - From spring 2016 to spring 2018 there were slight increases in proficiency for four of the five IGDIs-EL subtests: Picture Naming, Rhyming, Picture Identification, and "Which One Doesn't Belong?" By ethnicity, Hispanic students made the greatest gains, increasing by 9 percent on Picture Naming and by 7 percent on Rhyming over the three-year period. CERDEP and Non-CERDEP scores were similar between the two groups, showing slight increases.
- PALS-PreK:
 - High levels of students achieving proficiency, scoring 81 percent or higher on all tasks.
 - African American and White children scored similarly on most PALS-PreK; the one exception was Rhyme Awareness (9 percent lower). There were three PALS-PreK scales on which Hispanic students reported lower proficiency rates than other ethnicity groupings: Nursery Rhyme Awareness (12 percent lower than African Americans, 15 percent than Whites). Hispanic children scored lower than White children on two subtests: Print and Word Awareness (12 percent lower) and Rhyme Awareness (13 percent lower); scores were similar to African American children on these subscales.
 - CERDEP and Non-CERDEP students scored similarly.
 - Longitudinal PALS-PreK scores were stable across the 2016 to 2018 spring testing for all prekindergarten students. Scores of PALS-PreK subtests by ethnicity and CERDEP status were stable, with students in the proficient range varying little across time.
- B3- GOLD:
 - Overall, students scored proficient 87 percent on Language and 94 percent on Literacy.
 - All ethnic groups scored similarly on B3-GOLD subscales.
 - CERDEP and Non-CERDEP students received similar scores.

Findings and Recommendations: 2018-19 CERDEP

Finding 31: There is a slight increase in the total number of CERDEP classrooms in 2018-19, but the number of CERDEP students projected to be funded as full-time equivalents is projected to decline from 2017-18 to 2018-19.

- There were 11,734 full-time equivalents in 2017-18. The number of full-time equivalents funded during the current 2018-19 school year is expected to decrease to approximately 10,908 students: 8,890 projected full-time equivalents in public CERDEP and 2,018 budgeted full-time equivalents in non-public CERDEP.

Finding 32: Due to the projected decrease in the number of full-time equivalents in 2018-19, projected carry forward to 2019-20 may reach almost \$20.2 million, instead of the \$14.9 million carry forward that is budgeted by SCDE and First Steps.

- SCDE's projected carry forward is \$5,274,195 more than the amount SCDE has initially budgeted. The projected carry forward does not include an estimate of the cost of SCDE's plans to expend the carry forward. SCDE provided a narrative plan to expend carry forward, but expenditure amounts were not provided.
- Recommendation 8: SCDE and First Steps should consider prior years' attrition rates when developing future budgets and program plans. Analyzing attrition rates and including them in the CERDEP budgeting process may result in more realistic estimates of expenditures (instructional costs, classroom costs) and future carry forward amounts.

Key Findings Cost Ingredients and Sources of Cost Variation

- Delivery of CERDEP requires expenditures in multiple categories including costs for personnel, classroom materials and other instructional supports, food service, transportation, occupancy, and program administration.
- Key sources of variation in program cost structure include staff compensation levels, whether transportation services are provided, and whether the program pays rental costs (or the equivalent).

Per-Pupil Costs and Variation by Provider Context

- Based on our baseline cost model, the estimated all-inclusive annual per-pupil cost for the traditional CERDEP option (180-day school year at 6.5 hours per day, 20 pupils per classroom, state median salaries and benefits), when delivered at a site operated by a public school district, with transportation costs and rent, was about \$11,000 in 2017 dollars (or just over \$10,000 per pupil if there are no rental costs for the public site).
- The estimated per-pupil cost was almost identical for a private center-based program, with the same program features (including teacher qualifications) and parity with public school salaries and fringe benefits.
- When the private program is assumed to pay the lower wages and benefits consistent with other private child care programs, the estimated per-pupil cost falls to about \$7,000. The \$4,000 per pupil difference is entirely attributable to the public-private compensation differential.
- Assuming a CERDEP program is delivered in a higher-cost area (approximately the 75th percentile of salaries in the state), estimated per-pupil costs were about 18 percent higher. In a lower-cost area (the 25th percentile of salaries in the state), per-pupil costs were about 11 to 14 percent lower. The difference in per-pupil costs between lower- and higher-cost communities was \$2,000 to \$3,500 depending on the provider context.
- The differences attributable to program scale were small, given the model's assumptions. In contrast, costs were up to 10 percent higher and up to 27 percent higher when the class size fell to 18 pupils per classroom or to 20 pupils per classroom, respectively. This may occur if providers intentionally seek to lower class size, or it may reflect underenrollment.

CERDEP Cost Versus Reimbursement

- With the 2017–2018 CERDEP instructional reimbursement rate of \$4,422 per pupil for the traditional CERDEP option (the program variant we model), coupled with CERDEP transportation reimbursement (private centers only) and subsidized food costs, the total reimbursement per pupil falls short of provider costs by as much as 50 percent. The same is true for the hourly and daily reimbursement rates that apply for extended-day or extended-year options,
- The reimbursement gap is larger when compensation in private centers is equivalent to public school salaries and benefits, for providers in higher cost areas, and for providers that operate with a lower class size.

Given a CERDEP per-pupil reimbursement rate which is the same regardless of provider context, the size of the differential between per-pupil cost and reimbursement will vary substantially across CERDEP providers based on their compensation schedule, geographic locale, class size, and other features that drive per-pupil costs.

Recommendations

This discussion has raised a number of policy issues regarding reimbursement of per-pupil costs for CERDEP providers. Many of these issues inherently involve tradeoffs that must be considered as part of a policymaking process. We therefore recommend a series of action steps for CERDEP stakeholders in South Carolina to take in support of a deliberate process to determine the potential costs and benefits of modifying the current CERDEP reimbursement mechanism.

Recommendation 1. Convene CERDEP stakeholders to recognize the variation in CERDEP costs and identify options for an adequate and equitable reimbursement policy.

The SCDE and First Steps should hold one or more convenings with all CERDEP stakeholders—public and private providers, the Education Oversight Committee (EOC), and other relevant parties—to recognize the considerable variation in the estimated total per-pupil cost of delivering CERDEP and the potential strategies for instituting a reimbursement policy that incentivizes quality and ensures an adequate and more equitable reimbursement of provider costs. The discussions should focus on the policy considerations referenced in the last section, such as which sources of cost variation should be incorporated in the reimbursement schedule, what the expectations are for the state’s share of CERDEP costs and how providers will fill any gap, and whether there is support for moving toward compensation parity for CERDEP teachers in public and private settings.

Recommendation 2. Conduct an analysis of the effects of changes in the reimbursement mechanism on the funding required with no change in enrollment.

Guided by the discussions from the first recommendation, EOC should undertake an analysis of the implications of changes in the reimbursement mechanism for state funding of CERDEP with no change in enrollment. If a more-complex reimbursement approach is required, consider options to minimize administrative complexity, such as the use of existing formulas for K–12 funding to adjust for geographic differences in prices. Direct contracts with providers should be considered, as well. Similar to the approach taken in the National Academies report on *Transforming of the Financing of Early Care and Education*, it may be most feasible to phase in a new reimbursement structure over multiple years or gradually across districts, given the increase in funding that would be likely be required.

Recommendation 3. Provide technical assistance to CERDEP providers to ensure they access other sources of funding to cover their costs.

To the extent that private providers, in particular, will be expected to cover a portion of their costs from other public or private sources, First Steps should offer technical assistance to providers to ensure those funds are accessed to the maximum extent possible. For example, our set of illustrative providers suggests that some private centers may not access all sources of reimbursement, such as CACFP, for which they qualify. They also may not always fully claim all available CERDEP reimbursement (e.g., extended day or summer). Technical assistance would be a valuable resource for private centers (and perhaps school districts) to support the financial viability of CERDEP providers and stable participation in the program. Together, SCDE and First Steps could collaborate on an integrated plan for providing technical assistance and consistent implementation of the support for both public and private CERDEP providers.

Recommendation 4. Collect information on provider costs and refine model-based cost estimates to support the redesign of reimbursement policy.

Drawing on in-house capacity or external expertise, SCDE, First Steps, and EOC should continue to collect information on provider costs and refine model-based cost estimates as reimbursement policies are redesigned. The validity of any reimbursement mechanism depends on the extent to which it is grounded in real-world information about how providers implement the program and the associated cost structure. An evidenced-based approach will encourage buy-in on the part of CERDEP providers and other stakeholders, as well as support from families with children and the public more generally. Likewise, information collected from providers should be periodically updated to account for changes in program delivery and the associated implications for costs.

Recommendation 5. Review alignment between CERDEP’s reimbursement rates and those for other publicly funded early childhood programs in the state.

SCDE, First Steps, EOC and other state leaders should review the reimbursement rates for CERDEP and compare them with those of the other publicly funded early childhood programs in South Carolina that apply to 4K. This comparison is particularly relevant for private center-based CERDEP providers, as they also qualify to serve four-year-old children eligible for SC Vouchers. The review would determine the consequences of any current differences in the reimbursement rates across provider types, and assess the potential consequences in terms of participation in the subsidized program. If changes are made in the future to the reimbursement rates for CERDEP, the consequences for the difference in the reimbursement rates with SC Vouchers or any other relevant subsidized 4K program should be taken into account.

Introduction

January 15, 2019

The following is a report from the Education Oversight Committee pursuant to Provisos 1.58 and 1A.29 of the 2018-19 General Appropriation Act.

The General Assembly created and funded the Child Development Education Pilot Program beginning by a budget proviso in Fiscal Year 2006-07. In 2014 the General Assembly codified the program in Act 284 and renamed it the South Carolina Child Early Reading Development and Education Program. For purposes of this report, the program is referred to as CERDEP or state-funded full-day four-year-old kindergarten (4K). CERDEP provides full-day early childhood education for at-risk children who are four-year-olds by September 1. Both public schools and non-public childcare centers licensed by the South Carolina Department of Social Services (DSS) may participate in the program and serve eligible children. The South Carolina Department of Education (SCDE) oversees implementation of CERDEP in public schools and South Carolina Office of First Steps to School Readiness (First Steps) oversees implementation in non-public childcare settings.

Between school years 2006-07 and 2012-13, CERDEP services targeted eligible children residing in the plaintiff and trial districts in the Abbeville equity lawsuit, Abbeville County School District et. al. vs. South Carolina. In Fiscal Year 2013-14, the General Assembly expanded the program to include children who met the same age and socioeconomic criteria and who resided in a district with a poverty index of 75 percent or more. The poverty index was a measure of the percentage of students who are eligible for the free or reduced-price federal lunch program and/or Medicaid. The expansion included 17 eligible school districts that were not original trial and plaintiff districts. The legislature appropriated additional state funds of \$26.1 million to provide the educational services to children residing in these districts. In Fiscal Year 2014-15, the General Assembly further expanded the program to include children who met the same age and socioeconomic criteria and who resided in a district with a poverty index of 70 percent or more.

Of the funds appropriated for state-funded full-day 4K in Fiscal Year 2018-19, the General Assembly allocated \$300,000 to the Education Oversight Committee (EOC) to perform an evaluation of the program by January 15, 2019. This report:

- Documents CERDEP's implementation in Fiscal Year 2017-18 by focusing on the number of students served and the program's financial data;
- Using available information, provides estimates of the four-year-old population in 2017-18 and the number of four-year-olds in poverty served by a formal publicly-funded 4K program in South Carolina;
- Using 2016-17 and 2017-18 available data, estimates the per pupil cost of CERDEP;
- Details the results of 4K language and literacy assessments administered during school year 2017-18; and
- Provides preliminary estimates for Fiscal Year 2018-19, including the number of four-year-olds in poverty enrolled in CERDEP and financial data, including agency budget estimates and EOC projections.

I. CERDEP Program Results in 2017-18 (EOC)

Since Fiscal Year 2014-15, at-risk four-year-olds residing in a district with a poverty index of 70 percent or greater are eligible to participate in the program and attend a school or non-public child care center. Table 1 details at-risk children residing in the following 64 school districts could participate in CERDEP during FY 2017-18.

Table 1
At-Risk Four-Year-Olds Residing in Following School Districts
Eligible to Participate in CERDEP, 2017-18
Districts with Poverty Index of 70 percent or Greater

1	Abbeville	17	Clarendon 1	33	Greenwood 50	49	McCormick
2	Aiken	18	Clarendon 2	34	Greenwood 51	50	Newberry
3	Allendale	19	Clarendon 3	35	Greenwood 52	51	Oconee
4	Anderson 2	20	Colleton	36	Hampton 1	52	Orangeburg 3
5	Anderson 3	21	Darlington	37	Hampton 2	53	Orangeburg 4
6	Anderson 5	22	Dillon 3	38	Horry ⁵	54	Orangeburg 5
7	Bamberg 1	23	Dillon 4	39	Jasper	55	Richland 1
8	Bamberg 2	24	Dorchester 4	40	Kershaw ⁶	56	Saluda
9	Barnwell 19	25	Edgefield	41	Laurens 55	57	Spartanburg 3
10	Barnwell 29	26	Fairfield	42	Laurens 56	58	Spartanburg 4
11	Barnwell 45	27	Florence 1	43	Lee	59	Spartanburg 6
12	Berkeley	28	Florence 2	44	Lexington 2	60	Spartanburg 7
13	Calhoun	29	Florence 3	45	Lexington 3	61	Sumter
14	Cherokee	30	Florence 4	46	Lexington 4	62	Union ⁷
15	Chester	31	Florence 5	47	Marion	63	Williamsburg
16	Chesterfield	32	Georgetown	48	Marlboro	64	York 1

The January 2018 annual report on CERDEP documented the projected enrollments and expenditures for CERDEP for Fiscal Year 2017-18. The following is an analysis of the actual 2017-18 program metrics in both public and non-public CERDEP classrooms as administered by the South Carolina Department of Education (SCDE) and the Office of First Steps to School Readiness (First Steps). The analysis focuses on:

- Program expenditures and services for both SCDE and First Steps;
- Analysis of the percentage of four-year-olds in poverty served by a publicly-funded program across counties and districts;
- Analysis of the first-year expansion of the program that allowed districts and non-public centers to receive state funds to extend the school day or school year or to implement summer programs for children served in CERDEP; and
- Estimate of at-risk four-year-old children served by a formal program in the state.

⁵ While eligible, Horry has opted out of CERDEP participation.

⁶ While eligible, Kershaw has opted out of CERDEP participation.

⁷ While eligible, Union has opted out of CERDEP participation.

CERDEP Participation in Public Schools and Program Budget

The South Carolina Department of Education (SCDE) administers CERDEP in public school settings. In Fiscal Year 2017-18 of the 64 school districts eligible to serve at-risk four-year-olds in CERDEP, 61 schools districts participated. Three districts declined to participate: Horry County School District; Kershaw County School District and Union County School District.⁸ These districts instead opted to receive Education Improvement Act (EIA) funds to operate half-day four-year-old programs. In FY 2017-18, Table 2 shows three new schools and 25 new classrooms participated in CERDEP, resulting in 244 CERDEP schools and 589 participating classrooms serving 9,789 children at full instructional costs of \$43,284,159 (see Table 3).

Table 2
CERDEP Public School Growth in FY 2017-18

	FY 2017-18 (Final)
Number of New Schools	3
Number of Existing Schools	241
Total Number of Schools	244
Number of New Classrooms	25
Number of Existing Classrooms	564
Total Number of Classrooms	589
Total Number of Full Time Equivalents	9,789

Source: SC Department of Education, December 2018

Based on the source of information, the number of students participating in a public school CERDEP classroom varies from 9,789 to 10,733 students. Using monthly payments to districts obtained from SCDE's website, Appendix A reports 61 public school districts were reimbursed for 9,789 CERDEP students during the 2017-18 school year. For a detailed analysis of allocations to each district, see Appendix A. Appendix B reports 10,733 students were administered a 4K assessment at the beginning and at the end of the school year. However, no withdrawal date is included in the data, so it is possible a student withdrew or stopped participating in 4K after the second assessment was administered. There are no state guidelines or requirements that require a specific time during which the second assessment must be administered. Appendix A and Table 3 provide additional information about district reimbursements for expansion initiatives. Table 3 also substantiates district reimbursement for 9,789 CERDEP students and details:

- 9,789 students funded for instructional services at \$4,422 per student.
- 22 new CERDEP classrooms opened at \$10,000 per classroom;⁹
- 52 school districts received funds to purchase curriculum;

⁸ The only exception is that a charter school in the Horry County School District participates in CERDEP and receives state appropriations.

⁹ Table 3 reports \$220,000 was expended for new classroom supplies (\$10,000 per classroom for a total of 22 new classrooms). A December 3, 2018 email from SCDE staff reports there were 25 new classrooms during the 2017-18 school year.

- Approximately half, 31 school districts, offered expanded services (extended day, year or summer programs) to 1,355 children and were reimbursed \$1,088,631 for their expansion services;¹⁰ and
- \$10.3 million was carried forward to Fiscal Year 2018-19. However, in EOC's CERDEP report dated January 15, 2018, SCDE projected no carry forward funds.¹¹

Table 3 documents all revenues and expenditures for CERDEP by the SCDE in Fiscal Year 2017-18. Based on this data, there were 9,789 children funded in public CERDEP classrooms. Since Appendix B shows 10,733 CERDEP students were assessed twice during the school year, there is an 8.4 percent variance of 902 students.

¹⁰ South Carolina Department of Education. Child Early Reading and Development Education Program (CERDEP) Report to the EOC, Appendix A, Final Expansion Data, September 4, 2018.

¹¹ SC Education Oversight Committee. "FY 2016-17 & FY 2017-18 State-Funded Full-Day 4K Evaluation," p. 103, January 14, 2018.

Table 3
SCDE CERDEP Budget for Fiscal Year 2017-18

TOTAL Available Funds	
Carry forward from FY17 to FY18 ¹²	\$10,267,915
FY18 General Fund Appropriation	\$13,099,665
FY18 EIA Appropriation	\$34,324,437
TOTAL	\$57,692,017
TOTAL Actual Transfers/Expenditures	
Transfers:	
Portion of EOC Evaluation	\$195,000
Subtotal:	\$195,000
Agency Expenditures:	
Transportation	\$656,010
Assessment	\$500,000
Professional Development	\$20,307
Subtotal:	\$1,176,317
Payments to Districts:	
Instruction (\$4,422 per child pro-rata)	\$43,284,159
Supplies for New Classrooms (\$10,000 per classroom)	\$220,000
Curriculum	\$1,370,769
Classroom Expansion	\$137,079
Extended Year	\$165,440
Summer Program	\$786,112
Subtotal:	\$45,963,559
TOTAL	\$47,334,876
Full-Time Equivalents	9,789
Funds Carried Forward to FY19	\$10,357,141

Note: Expenditures have been rounded to the nearest whole dollar
Source: SC Department of Education, October 2018

¹² In an August 14, 2018 email to the EOC, SCDE updated the CERDEP carryforward funds from FY2016-17 into FY 2017-18. The revised carryforward amount is documented in the above. Please note the amount is different than the amount reported on January 15, 2018 in the EOC's annual report.

Changes in SCDE-Approved Curriculum

District expenditures for CERDEP include two new categories: curriculum and expansion. Regarding curriculum, in May of 2017 SCDE initiated a review of the curricula for CERDEP classrooms in public schools. Based upon the recommendations of an external review panel, the State Board of Education in August of 2018 approved five vendor-specific curricula for all CERDEP classrooms, detailed in Table 4. In addition, Montessori education was also approved for provision.

- Big Day for Pre-K by Houghton Mifflin Harcourt;
- Creative Curriculum, 6th Edition, by Teaching Strategies;
- High Scope by High Scope;
- InvestiGator Club by Robert Leslie;
- Worlds of Wonder by McGraw Hill; and
- Montessori.

According to SCDE:

CERDEP selected an approved curriculum by February 28, 2018. . . . Districts were required to attend training that aligned to their curriculum choice. CERDEP districts were reimbursed for the curriculum if they attended the required training. Reimbursements were not provided if a district did not participate in the PLO (Professional Learning Opportunity). Funds were allocated for each CERDEP classroom in the district. Additional districts provided documentation of the purchase for reimbursement by April 30, 2018.¹³

School districts were reimbursed accordingly for the purchase of curriculum. As the table below documents, overwhelming, 62 percent of the classrooms that received reimbursement funds elected to implement *Big Day in Pre-K*.¹⁴ SCDE reports that in 2017-18 there were a total of 564 CERDEP classrooms.

¹³ South Carolina Department of Education, Child Early Reading and Development Education Program (CERDEP) Report to the EOC, p. 28, September 4, 2018.

¹⁴ South Carolina Department of Education. Child Early Reading and Development Education Program (CERDEP) Report to the EOC, Table 5, September 4, 2018.

Table 4
Reimbursement Totals for District Curriculum Purchases, 2017-18

Number of CERDEP Districts	Number of Classrooms	Curriculum Choice	Reimbursement Amount
23	302	<i>Big Day for Pre-K</i>	\$923,068.70
16	107	<i>Creative Curriculum</i>	\$227,511.17
3	26	<i>High Scope</i>	\$49,546.50
10	54	<i>Worlds of Wonder</i>	\$170,642.70
0	0	<i>InvestiGator Club</i>	\$0
0	0	Montessori	\$0
52	489		\$1,370,769.07

Source: SC Department of Education, September 2018.

CERDEP: Participation in Non-public Centers and Program Budget

The Office of First Steps to School Readiness (First Steps) administers CERDEP in non-public (or private) child care centers approved by First Steps. The non-public child care centers can operate in any county but serve eligible children who reside in a CERDEP-eligible school district. Table 5 shows during FY 2017-18, First Steps added 24 new providers and 28 new classrooms that served 1,945 children who received the maximum reimbursement rate.

Table 5
CERDEP Non-public Provider Growth in FY 2017-18

FY 2017-18 (Final)	
Number of New Providers	24
Number of Existing Providers	166
Total Number of Providers	190
Number of New Classrooms	28
Number of Existing Classrooms	180
Total Number of Classrooms	208
Total Number of Full Time Equivalents	1,945

Source: SC Office of First Steps, December 2018.

Table 6 documents actual appropriations and expenditures in Fiscal Year 2017-18. Based on actual payments to non-public providers for instruction, First Steps reimbursed non-public CERDEP providers for 1,945 full-time equivalent students in 190 centers. First Steps expended approximately \$15.9 million, with \$9.7 million in funds carried forward into Fiscal Year 2018-19.

Table 6
First Steps CERDEP Budget for Fiscal Year 2017-18

TOTAL Available Funds	
Carry forward from FY17 to FY18	\$8,800,149
State Funds Expended and on-hold locally	\$152,717
Interested Earned on Cash	\$372,142
EIA Funds	\$9,767,864
General Fund	\$6,521,510
Teacher Supply Funds	<u>\$60,500</u>
TOTAL	\$25,674,882
TOTAL Actual Transfers/Expenditures	
Transfers:	
Portion of EOC Evaluation	\$105,000
Allocation to EOC per Proviso 1.72. and 1A.65. for Community Block Grants for Education Pilot Program	<u>\$1,000,000</u>
<i>Subtotal:</i>	<i>\$1,105,000</i>
Agency Expenditures:	
Salaries	\$961,444
Contractual Services	\$461,439
Supplies and materials	\$876,975
Rental/Leased Space	\$77,798
Travel	\$82,950
Fringe Benefits	<u>\$346,101</u>
<i>Subtotal:</i>	<i>\$2,806,707</i>
Payments to Centers:	
Instruction (\$4,422 per child pro-rata)	\$8,602,324
Expansion	\$2,376,804
Curriculum Materials for New Classrooms	\$269,472
Incentives and Miscellaneous	\$12,812
Stipends	\$480,013
Substitute Teacher Reimbursement	\$2,897
Teacher Supplies	\$60,225
Transportation	<u>\$192,311</u>
<i>Subtotal:</i>	<i>\$11,996,858</i>
TOTAL	\$15,908,565
Full-Time Equivalents	1,945
Funds Carried Forward to FY19	\$9,766,317
State Funds Expended and On-Hold Locally	<u>(\$29,432)</u>
TOTAL Carry Forward	\$9,736,885

Source: SC Office of First Steps, October 2018

Note: Expenditures have been rounded to the nearest whole dollar

*Note: Supplies for classrooms include \$10,000 allocation for new classrooms and funds to refurbish existing classrooms. Administration includes salaries, contractual services, travel, equipment and rental/leased space. Full-time equivalent served is determined by dividing the total number of funds expended for instructional services by \$4,422, the per child maximum reimbursable rate for 2017-18.

First Steps provided student enrollment data, with individual student unique identifier numbers for the 2017-18 school year. Looking at instructional payments to centers (non-public providers) in Table 6, non-public providers were reimbursed for 1,945 CERDEP students. However, First Steps also provided data that shows the number of students who participated in CERDEP based on the location of the non-public provider. The data indicate 2,195 students were served by CERDEP non-public providers. Enrollment of children is based on children living in CERDEP-eligible districts. The 11.3 percent variance between the enrollment data and the number of full-time equivalent children may be due to attrition, students enrolled in a non-public CERDEP class who did not stay enrolled in CERDEP for the entire length of the school year.

Table 7
CERDEP Students Served by Non-public Providers, by Location of Provider
During School Year 2017-18

County	Number	County	Number
Aiken	164	Jasper	17
Anderson	30	Kershaw	39
Bamberg	35	Laurens	108
Barnwell	37	Lee	20
Beaufort	4	Lexington	120
Berkeley	49	Marion	77
Charleston	21	Marlboro	9
Cherokee	22	Newberry	30
Chester	11	Oconee	24
Chesterfield	7	Orangeburg	68
Darlington	41	Pickens	2
Dillon	51	Richland	216
Dorchester	7	Saluda	11
Florence	218	Spartanburg	119
Georgetown	50	Sumter	132
Greenwood	50	Union	36
Hampton	14	Williamsburg	42
Horry	297	York	17
Total Enrollment		2,195	

Source: SC First Steps, November 2018

CERDEP: Expansion and Waiting Lists

Expansion

Provisos 1.72. and 1A.65. of the 2017-18 General Appropriation Act allowed both the South Carolina Department of Education and the Office of First Steps to use available CERDEP funding to lengthen the school day or school calendar or to provide a summer program for four-year-olds served in CERDEP:

For Fiscal Year 2017-18, the Office of First Steps to School Readiness is permitted to retain the first \$1,000,000 of any unexpended CDEPP funds of the prior fiscal year and expend these funds to enhance the quality of the full-day 4K program in private centers and provide professional development opportunities.

By August first, the Office of First Steps is directed to allocate any additional unexpended CDEPP funds from the prior fiscal year and any CDEPP funds carried forward from prior fiscal years that were transferred to the restricted account for the following purpose: Education Oversight Committee - \$1,000,000 for the South Carolina Community Block Grants for Education Pilot Program.

If carry forward funds are less than the amounts appropriated, funding for the items listed herein shall be reduced on a pro rata basis.

If by August first, the Department of Education or the Office of First Steps determines there will be funds available, funds shall be allocated on a per pupil basis for districts eligible for participation first, who have a documented waiting list, then to districts to increase the length of the program to a maximum of eight and a half hours per day or two hundred and twenty days per year or to fund summer programs. If a district chooses to fund summer enrollment the program funding shall conform to the funding in this act for full year programs, however shall be reduced on a pro rata basis to conform with the length of the program. A summer program shall be no more than eight and a half hours per day and shall be not more than ten weeks in length. The per pupil allocation and classroom grant must conform with the appropriated amount contained in this Act and end of year adjustments shall be based on the one hundred and thirty-five-day student average daily membership or later student average daily membership for districts choosing to extend the program past one hundred and eighty days. Funds may also be used to provide professional development and quality evaluations of programs.

No later than April first, the Department of Education and the Office of First Steps must report to the Chairman of the Senate Finance Committee and the Chairman of the House Ways and Means Committee on the expenditure of these funds to include the following information: the amount of money used and specific steps and measures taken to enhance the quality of the 4K program and the amount of money used for professional development as well as the types of professional development offered and the number of participants.

Appendix A details CERDEP expenditures by district, including total instructional, supply, curriculum and expansion costs. District reimbursement for expansion options was approximately \$1.1 million. Appendix B provides the number of public CERDEP students assessed twice during the 2017-18 school year by district. Appendix C includes the number of public CERDEP students assessed twice during the 2017-18 school year, by district and public school.

Appendix D describes CERDEP expansion in public school district during the 2017-18 school year. During FY 2017-18, 32 districts and 114 non-public providers participated in at least one

expansion activity providing 2,613 CERDEP students some form of expanded instruction. In its September 2018 data response, SCDE outlined the following four options for district expansion:

- **Additional Class:** SCDE required districts to provide a documented waiting list of CERDEP-eligible students before an additional class was approved. Districts were reimbursed at a daily rate of \$24.56 and could receive \$10,000 for materials and equipment if enrolling seven or more children. If less than seven children were enrolled, districts received \$1,000 per child. SCDE's November estimates assumed 90-day reimbursements for each district.
- **Extended Hours:** Districts were reimbursed at a \$3.78 hourly rate per child. SCDE's November estimates assumed 90-day reimbursements for each district.
- **Extended Year:** For instructional days beyond 180 days, districts were reimbursed between \$24.56 (for a 6.5-hour day) to \$34.02 (for an 8.5-hour day) per child. A complete school year with an extended year could equal up to 220 instructional days.
- **Summer Program:** SCDE's November estimates assumed ten weeks of instruction and up to 8.5 hours per day. Districts were reimbursed at the same rate as for the extended year: \$24.56 (for a 6.5-hour day) to \$34.02 (for an 8.5-hour day) per child. A complete school year with the addition of a summer program could equal up to 230 instructional days. See Appendix D.

First Steps took a slightly different approach to the CERDEP expansion initiative. For the 2017-18 school year, First Steps offered three options:

- The extended day option offered 180 days of service for 8.5 hours daily, instead of the traditional CERDEP instructional day of 6.5 hours. The daily reimbursable rate to non-public providers was \$32.13.
- The extended year option served students for 220 days at 6.5 hours daily. The daily reimbursable rate to non-public providers was \$24.57.
- A summer school option lengthened total days of services to 220 days and expanded the summer schedule to eight hours daily. Non-public providers were reimbursed \$24.57 for each day during the traditional school year of 180 days. For the additional 40 days during summer, non-public providers were reimbursed \$32.13. See Appendix E.

The expansion initiative was not implemented consistently in both public and non-public CERDEP environments:

- The extended year option in both public and non-public classrooms totaled 220 instructional days. However, SCDE allowed districts to determine the length of the instructional day; it could range from 6.5 hours to 8.5 hours daily. First Steps defined the extended year option with 8.5-hour instructional days.
- The summer school option varied in both public and non-public classrooms. CERDEP districts could choose to offer the summer school option and provide up to 230 instructional days that could vary between 6.5 hours to 8.5 hours. First Steps defined the summer school option as adding up to 40 8-hour instructional days, totaling 220 instructional days for one school year.

Waiting Lists

As noted earlier in this section, FY 2017-18 expenditures indicate CERDEP districts were reimbursed for 9,789 students enrolled in CERDEP. Table 8 shows approximately 936 children were on district waiting lists during the 2016-17 school year, with 189 in Aiken and 100 in Richland 1. These two districts accounted for 30 percent of the children statewide on waiting lists. At the beginning of FY 2017-18, there were 660 children on district waiting lists, representing an approximate decrease of 30 percent. In the January 2018 CERDEP evaluation report, the EOC recommended SCDE and First Steps share waiting lists to ensure CERDEP-eligible students on waiting lists were able to enroll in either a public or non-public CERDEP classroom. Proviso 1.72 states:

By August 1, the Department [SCDE] and the Office of First Steps must collect the documented waiting lists and determine a process to notify parent of eligible students of available slots in all approved providers.

For the 2017-18 school year, two separate waitlist numbers are reflected. In the January 2018 EOC CERDEP evaluation, SCDE reported there were 634 children on district waitlists. In their September 2018 CERDEP data response to the EOC, SCDE surveyed CERDEP districts and reported there were 148 children on district waitlists. As of August 31, 2018, there has been no further communication between SCDE and First Steps regarding sharing of waitlist information, and First Steps has not received information about CERDEP-eligible students on public school CERDEP waitlists.

Table 8
Children on District-Maintained Waiting Lists in 2016-17 and 2017-18

District	Number of Children 16-17 (January 2018 report)	Number of Children 17-18 (January 2018 report)	Number of Children 17-18 (August 2018 Data Response)
Abbeville	0	0	
Aiken	189	62	
Allendale	0	0	
Anderson 2	5		2
Anderson 3	3	8	
Anderson 5	5	1	
Bamberg 1	4	1	9
Bamberg 2	0		
Barnwell 19	3		1
Barnwell 29	0	5	
Barnwell 45	0	8	
Berkeley	41	28	28
Cherokee			6
Chester	10	24	
Chesterfield	39	0	
Clarendon 1	0		
Clarendon 2	6	4	1
Clarendon 3	0		

District	Number of Children 16-17 (January 2018 report)	Number of Children 17-18 (January 2018 report)	Number of Children 17-18 (August 2018 Data Response)
Colleton	9	15	
Darlington	19		7
Dillon 3	0	2	
Dillon 4	19	0	
Dorchester 4	7	0	
Edgefield	0		
Fairfield	0	7	
Florence 1	15	20	20
Florence 2	0	0	
Florence 3	15	0	10
Florence 4	20	0	
Florence 5	2	3	
Georgetown	12	0	
Greenwood 50	26	2	
Greenwood 51	0	1	
Greenwood 52	0	0	4
Hampton 1	13	4	
Hampton 2	2	0	
Horry (Academy of Hope Charter)	7	3	
Jasper	0	165	
Laurens 55	0	3	
Laurens 56	3	2	
Lee	1		
Lexington 2	35	0	
Lexington 3	8	0	
Marlboro	0	6	
McCormick	0		1
Newberry	41	91	20
Oconee	71	21	6
Orangeburg 3	0	2	
Orangeburg 4	6	5	4
Orangeburg 5	0	0	10
Richland 1	100	51	
Saluda	8	14	8
Spartanburg 3	16	16	
Spartanburg 4	0	9	
Spartanburg 6	46	36	

District	Number of Children 16-17 (January 2018 report)	Number of Children 17-18 (January 2018 report)	Number of Children 17-18 (August 2018 Data Response)
Spartanburg 7	8	0	
Sumter	85	10	8
Williamsburg	16	5	
York 1	21	0	3
Total	936	634	148

Source: SCDE Response to EOC Data Request, November and December 2017 and September 2018.

Summary

At the end of Fiscal Year 2017-18, SCDE and First Steps carried forward approximately \$20 million in unexpended funds for CERDEP. This amount includes funds from prior fiscal years that have been carried forward over time. In summary, Table 9 shows the growth in the number of CERDEP classrooms and participating schools and non-public providers. For the 2017-18 school year, 11,734 children were funded in public and non-public CERDEP classrooms, representing a decline of 50 students being funded in CERDEP (defined as full-time equivalents) over the prior school year. However, while there was a slight decline in CERDEP enrollment, 53 new classrooms were added, and 24 schools or non-public providers participated in CERDEP for the first time during 2017-18. Approximately 83 percent participated in a public-school classroom, and the remaining 17 percent in a non-public classroom.

Table 9
Summary of CERDEP Provider and School Growth in 2017-18

	SCDE 17-18 School Year (Final)	First Steps 17-18 School Year (Final)	Total
Number of New Schools or Providers	3	24	27
Number of Existing Schools or Providers	241	166	407
Total Number of Schools or Providers	244	190	434
Number of New Classrooms	25	28	53
Number of Existing Classrooms	564	180	744
Total Number of Classrooms	589	208	797
Total Number of Full-Time Equivalents	9,789	1,945	11,734

Source: SC Department of Education and SC Office of First Steps, December 2018

Documenting both the history of carry forward monies as well as the number of students served over the past two fiscal years, Table 10 shows \$20 million was carried forward from FY 2016-17 to FY 2017-18. The reason FY 2015-16 data are not included is that in FY 2015-16 SCDE did not reimburse at a pro rata amount, making comparisons to subsequent years impossible.

Table 10
Summary of CERDEP

	FY2016-17	FY2017-18
Students served in public schools for traditional year	9,838	9,789
Students served in non-public centers for traditional year	1,946	1,945
Total students served in traditional year	11,784	11,734
Expansion Services – Number Students Served in:		
Public Schools	N/A	1,355
Non-public Centers		1,258
Total students served in expansion services		2,613
Unexpended Funds		
SCDE	\$10,267,915	\$10,357,141
First Steps	\$8,952,866	\$9,736,885
Total unexpended funds	\$19,220,781	\$20,094,026

Findings and Recommendations

Finding 1: Additional CERDEP classrooms were added during the 2017-18 school year, but the actual number of children (full-time equivalent)¹⁵ funded decreased from the 2016-17 school year.

- SCDE reported 25 classrooms and three schools were added during the 2017-18 school year. However, based on SCDE program financial data districts were reimbursed for 9,789 students, a slight decrease in district reimbursement of 9,838 students during the 2016-17 school year.
- Similarly, First Steps reports there were 24 new providers and 28 new classrooms in FY 2017-18; however, First Steps' financial data indicate providers were reimbursed for 1,945 students, which is approximately the same number funded in 2016-17.
- Approximately, 83 percent of children were served in public schools and 17 percent in non-public centers. A total of 11,735 children (full-time equivalents) were funded in CERDEP in public and non-public settings. A total of \$63 million was expended for the program and over \$20 million carried forward from FY 2017-18 to FY 2018-19. Total expenditures are approximately \$7 million higher than in FY 2016-17 yet carry forward funds are also higher in FY 2017-18.

Finding 2: Based on SCDE financial data detailing payments to districts, Appendix A shows CERDEP district were reimbursed for 9,789 students. Appendix B reports 10,733 students were administered a 4K assessment twice during the school year, at the beginning and end of the school year. These two data sources represent a variance of 902 students, totaling \$3,986,644.¹⁶ The variance may be due to students who do not participate in CERDEP after the second (end of year) administration of the 4K assessment.

- In Appendix B, no withdrawal date is included in the data, so it is possible a student withdrew or stopped participating in 4K after the second assessment was administered. There are no state guidelines or requirements that require a specific time during which the second assessment must be administered. Appendix C provides a breakdown by district and school of the number of students assessed twice during the 2017-18 school year.
 - Recommendation 1: SCDE and First Steps should determine a period during which the second assessment should be administered to ensure students who are administered a second assessment may be enrolled for the length of the school year.

Finding 3: Approximately 936 children were on district waiting lists in 2016-17, with 189 in Aiken and 100 in Richland 1. These two districts accounted for 30 percent of the children statewide on waiting lists. In 2017-18, based on SCDE's September 2018 data response, there were 148 children on waiting lists, representing a decrease of 84 percent from 2016-17 to 2017-18.

¹⁵ A full-time equivalent is determined by dividing the total number of funds expended for instructional services by \$4,422, the per child maximum reimbursable rate. Annual instructional services expenditures were provided by SC Department of Education and SC State Office of First Steps.

¹⁶ \$4,422 per pupil multiplied by 902 students.

- Recommendation 2: SCDE and First Steps should continue to share waiting lists to ensure all CERDEP-eligible students are enrolled in available slots. Organizations that enroll and serve at-risk four-year-olds (including Head Start, SCDE and First Steps) should also be included. Formal coordination of waiting lists would also increase the number of at-risk children served statewide, which is significant because the number of at-risk children served statewide is estimated to have decreased in 2017-18. However, as of August 2018, First Steps reported no public school CERDEP waitlists for the 2018-19 school year had been provided.

Finding 4: Since both SCDE and First Steps manage CERDEP as separate programs, the expansion initiative in both public and non-public environments was also implemented as separate initiatives by SCDE and First Steps. This disconnected implementation resulted in inconsistencies in the amount of additional CERDEP instruction and reimbursement rates provided by public schools and non-public providers.

- For example, a summer school option lengthened total days of services to 220 days and expanded the summer schedule to eight hours daily. Non-public providers were reimbursed \$24.57 for each day during the traditional school year of 180 days. For the additional 40 days during summer, non-public providers were reimbursed \$32.13. 114 non-public providers operated 124 summer school classes serving 1,258 four-year-olds.
- However, SCDE's November estimates assumed ten weeks of instruction and up to 8.5 hours per day. Districts were reimbursed at the same rate as for the extended year: \$24.56 (for a 6.5-hour day) to \$34.02 (for an 8.5-hour day) per child. A complete school year with the addition of a summer program could equal up to 230 instructional days. During the 2017-18 summer, 32 districts operated summer school programs for four-year-old children.
 - Recommendation 3: Like the need for additional collaboration and coordination on the student waiting lists, SCDE and First Steps should work together to determine consistent implementation of CERDEP expansion, regardless of the CERDEP environment in which it is implemented.

Finding 5: Students who participate in a CERDEP expansion initiative are not identified at the student level. Student-level identification was not required in Proviso 1.72. Without student-level identification, it is not possible to evaluate the effectiveness of expansion, as measured by student-level performance on the Kindergarten Readiness Assessment.

- Recommendation 4: SCDE and First Steps should develop and implement a student-level identification system so the academic performance of students who participate in CERDEP expansion initiatives may be analyzed over time. This information should be provided to districts, so they can assess the impact of expansion on their students' kindergarten readiness and academic performance in later grades and reported to the EOC as part of their annual CERDEP evaluation.

Growth: Projection of Children in Poverty Served Statewide in 2017-18

A goal of CERDEP is to increase the number of four-year-olds in poverty who are served with a full-day high-quality program that meets specific structural and process criteria for quality such as minimum adult:child ratios, evidence-based curriculum and qualified teachers.¹⁷ This analysis provides a comprehensive picture of the projected enrollment of eligible four-year-old children during the 2017-18 school year.

Multiple full-day programs serve children in South Carolina, including: SC Office of First Steps (First Steps), Head Start, and school districts that manage multiple 4K programs, including CERDEP through the SC Department of Education (SCDE). While the focus of this report is state-funded full-day (CERDEP), other publicly-funded 4K programs are included in the analysis. Head Start is a federal program, and the SC Department of Social Services (DSS) provides federal child care vouchers (ABC Vouchers) to eligible children. However, a child's receipt of an ABC voucher does not necessarily mean the child is enrolled in a full-day program. The child could receive the voucher to pay for wraparound care (either before or after the formal 4K program day) or for 4K enrollment in participating non-public childcare settings.

Some school districts also opt to fund additional half-day or full-day 4K with local revenue and other state revenue sources, such as funds from the Education Improvement Act. Beaufort, Horry and Kershaw operate district-level 4K classrooms and do not receive CERDEP funds, even though these districts are eligible to participate in CERDEP. Program and enrollment data regarding local and EIA funding of 4K programs are not collected at the state level. However, this analysis incorporates 4K assessment data from school year 2017-18 to get a more comprehensive view of publicly funded early education programs.

Methodology

Appendix F documents the estimated number of four-year-olds in poverty projected to reside in each school district in 2017-18 and the number of four-year-olds in poverty being served in a publicly-funded early education program or service.

County birth rates reported by the SC Department of Health and Environmental Control (DHEC) provided the number of four-year-old children by county. For counties that had multiple districts, the analysis allocates the number of four-year-old children to districts based on the student enrollment in school year 2017-18.

The 2017-18 poverty index is the new poverty index created by SCDE, in cooperation with the Office of Revenue and Fiscal Affairs. The poverty index was developed because of the implementation of the United States Department of Agriculture's Community Eligibility Program. The index uses student data from the federal Supplemental Nutrition and Assistance Program, Temporary Assistance for Needy Families, and Medicaid. It also includes foster, homeless and migrant students. By multiplying the district poverty index by the number of projected four-year-old children, an approximate number of at-risk four-year-olds in poverty by district was estimated.

While a student must live in a district that is eligible to participate in CERDEP, a student may attend a non-public CERDEP provider that is in any district. Because the child's district of

¹⁷ National indicators of prekindergarten quality selected by the National Institute for Early Education Research (NIEER) and South Carolina's implementation of those indicators were discussed in Section I of this report.

residence was not included in the CERDEP student data file submitted by First Steps to the EOC, the data reflect the physical location of the non-public CERDEP provider in a county with allocation of children across districts in a county based pro rata on the enrollment of districts in that county. This may partially explain why some districts have more than 100 percent of estimated children in poverty being served. CERDEP enrollment in school district used the number of children funded in 2017-18.

The SC Head Start Collaboration Office provided student information based on May 2018 Head Start Census data. The data reflect the number of students served in Head Start in each county.

DSS provided an unduplicated count of the number of child care vouchers that authorized for four-year-olds by county for the July 1, 2017-June 30, 2018 timeframe. The number of vouchers increased significantly from the 2016-17 school year (2,499) to the 2017-18 school year (5,633), an increase of approximately 56 percent. DSS reported this increase could be due to more four-year-olds receiving vouchers than in the past. This increase does not reflect an overall total increase in the number of vouchers. Rather it is likely the total number of eligible children of other age groups decreased as a result of the increase in four-year-olds.¹⁸

A child's receipt of a child care voucher does not necessarily mean the child is enrolled in a full-day program. A child may be enrolled in a full-day 4K program and still receive a child care voucher for wraparound child care before the school day begins or after the school day ends or during the summer. A child enrolled in CERDEP in a non-public setting may also receive an ABC voucher, so child care is provided to the student after the instructional day. CERDEP requires a student participate for 6.5 hours daily, but a parent may need additional child care due to his/her work schedule.

Findings

Appendix F shows that in 2017-18 61 percent of the state's four-year-olds (36,018) lived in poverty and were at risk of not being ready for kindergarten. The estimate size of four-year-olds living in poverty increased slightly from 35,182 in 2016-17 to 36,018 in 2017-18. Over 17,000 of the state's at-risk four-year-old population, or 48 percent, were served by a full-day, publicly-funded early learning intervention (including CERDEP and Head Start).

First Steps CERDEP student enrollment data did not include the district of residence. Therefore, Appendix F includes First Steps CERDEP student enrollment data for districts that were eligible to participate in CERDEP in the calculation of students receiving services. However, 309 First Steps CERDEP students were not included in the calculation because they were enrolled in a First Steps CERDEP class in a district that was not eligible for CERDEP. The district of residence for these students could not be determined.

Appendix F also provides limited information about four-year-olds who participated in a public 4K program outside of CERDEP. These districts either opted not to participate in CERDEP or were not eligible to participate in CERDEP. This information was obtained by analyzing student assessment results from 2017-18 and documents the number of children identified in poverty who were assessed at the beginning and end of the school year. Approximately 7,592 four-year-olds in poverty were served by public 'Non-CERDEP' programs. However, information about specific student eligibility requirements (family income, special needs or other risk factors), and 4K service characteristics (full-day, half-day) are not available at the state level. Additionally, there are

¹⁸ December 19, 2018, Telephone interview with Department of Social Services.

instances where the percentage of children served in a district or county exceeds 100 percent. In these cases, further study is warranted.

If student enrollment in First Steps CERDEP classrooms located in non-eligible CERDEP districts and student enrollment in public schools that did not participate in CERDEP or were not eligible to participate are included in the statewide calculation, approximately 70.4 percent of four-year-olds living in poverty were served by a formal publicly-funded four-year-old program, which may be full-day or half-day in duration. This estimate does not include four-year-olds receiving child care vouchers.

In past years, four-year-olds receiving child care vouchers were also included in the projection of four-year-olds receiving services. However, the number of children receiving a voucher increased significantly from last year. Since last year, there was a 56 percent increase in four-year-old children who received a childcare voucher. Students who received vouchers may also participate in another 4K program such as CERDEP, and the voucher may be used to pay for child care before and/or after the 6.5-hour CERDEP school day. Since students enrolled in another 4K program may also receive a voucher, the number of vouchers were not included in the estimated percentage of four-year-olds served. Including the voucher data in the estimate of children served would likely have artificially inflated the number of four-year-olds receiving services since it may be duplicative data.

Table 11 summarizes the number of four-year-olds in poverty served statewide in Fiscal year 2017-18.

Table 11
Summary of Four-Year-Olds in Poverty Served Statewide, FY 2017-18

	2017-18
Public CERDEP Enrollment	9,789
Non-public CERDEP Enrollment	1,778
Total CERDEP Enrollment	11,567
Total Head Start Enrollment	5,589
Estimated Number of Four-Year-Olds Served by CERDEP or Head Start	17,156
Estimated Number of Four-Year-Olds in Poverty	36,018
Estimated Percentage of Four-Year-Olds in Poverty Served by CERDEP or Head Start	47.6%
Estimated Percentage of Four-Year-Olds in Poverty Not Served by CERDEP or Head Start	52.4%
Four-Year-Olds in Poverty in Non-CERDEP Public 4K	7,592
Four-Year-Old Children served in Non-Public CERDEP in a center operating in a non-CERDEP district	309
Total Number of Four-Year-Olds in Poverty in Formal 4K (CERDEP, Head Start, and Non-CERDEP Public 4K)	25,057
Estimated Percentage of Four-Year-Olds in Poverty Served	69.6%
Total SC Vouchers Provided	5,633 ¹⁹

¹⁹ Child care voucher data are not included in the estimated number of four-year-olds served because it may include children who receive 4K services through another resource, such as CERDEP or Head Start.

Findings and Recommendations

Finding 6: The estimated size of four-year-olds living in poverty increased slightly from 35,182 in 2016-17 to 36,018 in 2017-18. Approximately 48 percent of four-year-olds living in poverty were enrolled in CERDEP or Head Start. If student enrollment in First Steps CERDEP classrooms located in non-eligible CERDEP districts and in public schools that do not participate in CERDEP are included in the statewide calculation, approximately 70 percent of four-year-olds living in the poverty are served by a formal publicly-funded four-year-old program. This estimate does not include four-year-olds receiving child care vouchers.

- Head Start enrollment increased from by 27 percent, from 4,395 children in the May 2017 Head Start Census to 5,589 children in the May 2018 census.
- The number of four-year-olds receiving child care vouchers more than tripled during the 2017-18 school year. This data are not included in the number of children in poverty participating in 4K services because children may be enrolled in a 4K program and also receive an SC Voucher for child care before or after normal school hours, artificially inflating the number of students participating in 4K programs.
- Almost 9,800 four-year-old children also participated in other state-funded four-year-old programs that are not part of CERDEP. However, data about these programs are not collected at the state level, so there is no process to understand program characteristics and demographics, such as length of the school day and/or student eligibility requirements for the programs.
 - Recommendation 5: CERDEP guidelines for reporting student enrollment should be implemented for all programs and services for four-year-old children. As noted in last year's evaluation, student, program and financial data regarding all public 4K programs should be collected and reported at the state level, since only evaluating CERDEP classrooms does not fully account for half of the state's at-risk four-year-old population and the instruction and services they may receive through locally-funded or EIA-funded programs. SCDE should implement uniform data collection procedures for all publicly-funded 4K programs, including those funded by local school districts and the Education Improvement Act. Without a uniform data collection procedure, 4K instruction and services in districts that do not participate in CERDEP are not captured. It is difficult to calculate an accurate estimate of the State's progress in serving all four-year-olds in poverty.
 - Recommendation 6: To increase 4K participation across all publicly-funded programs, coordinated enrollment initiatives should be implemented with SCDE, First Steps and Head Start to ensure the maximum number of eligible four-year-olds are enrolled. Where possible enrollment of four-year-olds in district-administered 4K instruction funded by local or EIA funding should also be included. As noted earlier, sharing waitlists across multiple 4K settings may facilitate increased enrollment.
- Finding 7: First Steps CERDEP student enrollment data did not include the district of residence. Therefore, Appendix F includes First Steps CERDEP student enrollment data for districts that are eligible to participate in CERDEP in the calculation of students receiving services. However, 309 First Steps CERDEP students are not included in the calculation because they are enrolled in a First Steps CERDEP class in a district that is

not eligible for CERDEP, and the district of residence for these students could not be determined.

Recommendation 7: First Steps student enrollment data should include the student's district of residence. Inclusion of district of residence would improve the accuracy of the number of CERDEP students served as indicated by their district of residence.

**Appendix A: CERDEP Expenditures by District,
including District Reimbursements for CERDEP Students (Full-Time Equivalents)**

District	CERDEP Instruction Revenue Code 3134	CERDEP Instruction Revenue Code 3541	TOTAL INSTRUCTIONAL	Total Instructional Divided by \$4,422	CERDEP Supplies Revenue Code 3134A	CERDEP Curriculum Revenue Code 3134D	CERDEP Classroom Expansion	CERDEP Extended Year Revenue Code 3134G	CERDEP Summer Program Revenue Code 3134H
Abbeville	\$384,877.78	\$0.00	\$384,877.78	87	\$0.00	\$15,294.90	\$0.00	\$0.00	\$0.00
Aiken	\$1,986,002.09	\$0.00	\$1,986,002.09	449	\$30,000.00	\$70,356.54	\$16,213.56	\$22,109.40	\$8,843.76
Allendale	\$151,723.73	\$0.00	\$151,723.73	34	\$0.00	\$0.00	\$0.00	\$20,412.00	\$40,824.00
Anderson 2	\$429,621.87	\$0.00	\$429,621.87	97	\$0.00	\$15,294.90	\$0.00	\$0.00	\$17,687.52
Anderson 3	\$455,334.98	\$0.00	\$455,334.98	103	\$0.00	\$18,353.88	\$0.00	\$0.00	\$0.00
Anderson 5	\$1,748,950.13	\$0.00	\$1,748,950.13	396	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Bamberg 1	\$87,752.13	\$0.00	\$87,752.13	20	\$0.00	\$4,684.82	\$0.00	\$0.00	\$0.00
Bamberg 2	\$115,070.27	\$0.00	\$115,070.27	26	\$0.00	\$0.00	\$0.00	\$0.00	\$11,791.68
Barnwell 19	\$83,559.42	\$0.00	\$83,559.42	19	\$0.00	\$2,256.45	\$0.00	\$0.00	\$5,895.84
Barnwell 29	\$84,018.00	\$0.00	\$84,018.00	19	\$0.00	\$3,199.27	\$0.00	\$0.00	\$1,473.96
Barnwell 45	\$173,833.73	\$0.00	\$173,833.73	39	\$0.00	\$4,426.94	\$0.00	\$0.00	\$0.00
Berkeley	\$3,978,686.31	\$0.00	\$3,978,686.31	900	\$0.00	\$143,772.06	\$0.00	\$0.00	\$0.00
Calhoun	\$332,894.71	\$0.00	\$332,894.71	75	\$0.00	\$20,387.46	\$0.00	\$0.00	\$13,707.83
Cherokee	\$682,691.29	\$0.00	\$682,691.29	154	\$0.00	\$22,564.50	\$0.00	\$0.00	\$0.00
Chester	\$868,710.09	\$0.00	\$868,710.09	196	\$0.00	\$32,623.76	\$0.00	\$0.00	\$30,363.58
Chesterfield	\$602,407.42	\$0.00	\$602,407.42	136	\$30,000.00	\$15,494.29	\$0.00	\$0.00	\$0.00
Clarendon 1	\$0.00	\$173,375.16	\$173,375.16	39	\$10,000.00	\$4,612.90	\$17,853.34	\$0.00	\$11,054.70
Clarendon 2	\$0.00	\$392,575.33	\$392,575.33	89	\$0.00	\$15,294.90	\$0.00	\$0.00	\$0.00
Clarendon 3	\$0.00	\$152,116.80	\$152,116.80	34	\$0.00	\$0.00	\$0.00	\$4,421.88	\$0.00
Colleton	\$0.00	\$1,017,191.02	\$1,017,191.02	230	\$0.00	\$38,764.22	\$0.00	\$0.00	\$29,479.20
Darlington	\$0.00	\$1,266,919.38	\$1,266,919.38	287	\$0.00	\$11,092.50	\$0.00	\$0.00	\$16,582.05
Dillon 3	\$0.00	\$294,636.22	\$294,636.22	67	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

District	CERDEP Instruction	CERDEP Instruction	TOTAL	Total Instructional	CERDEP Supplies	CERDEP Curriculum	CERDEP Classroom Expansion	CERDEP Extended Year	CERDEP Summer Program
Dillon 4	\$0.00	\$529,231.51	\$529,231.51	120	\$0.00	\$13,280.82	\$0.00	\$0.00	\$0.00
Dorchester 4	\$0.00	\$427,656.53	\$427,656.53	97	\$0.00	\$0.00	\$0.00	\$0.00	\$10,317.72
Edgefield	\$0.00	\$498,998.13	\$498,998.13	113	\$0.00	\$10,128.49	\$0.00	\$0.00	\$0.00
Fairfield	\$0.00	\$663,300.00	\$663,300.00	150	\$0.00	\$18,451.60	\$0.00	\$0.00	\$0.00
Florence 1	\$0.00	\$1,857,829.60	\$1,857,829.60	420	\$0.00	\$36,975.00	\$0.00	\$81,648.00	\$0.00
Florence 2	\$0.00	\$185,592.98	\$185,592.98	42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Florence 3	\$0.00	\$429,785.64	\$429,785.64	97	\$0.00	\$15,294.90	\$0.00	\$0.00	\$15,309.00
Florence 4	\$0.00	\$137,049.24	\$137,049.24	31	\$0.00	\$6,738.36	\$0.00	\$0.00	\$20,412.00
Florence 5	\$0.00	\$172,458.00	\$172,458.00	39	\$0.00	\$1,479.00	\$0.00	\$0.00	\$0.00
Georgetown	\$0.00	\$1,410,585.24	\$1,410,585.24	319	\$0.00	\$51,522.82	\$0.00	\$0.00	\$0.00
Greenwood 50	\$0.00	\$960,032.58	\$960,032.58	217	\$0.00	\$36,707.76	\$0.00	\$36,849.00	\$36,849.00
Greenwood 51	\$0.00	\$166,889.56	\$166,889.56	38	\$0.00	\$6,117.96	\$0.00	\$0.00	\$0.00
Greenwood 52	\$0.00	\$176,028.36	\$176,028.36	40	\$0.00	\$6,117.96	\$0.00	\$0.00	\$0.00
Hampton 1	\$0.00	\$408,953.11	\$408,953.11	92	\$20,000.00	\$22,295.34	\$63,011.79	\$0.00	\$28,742.22
Hampton 2	\$0.00	\$165,317.29	\$165,317.29	37	\$10,000.00	\$6,178.02	\$0.00	\$0.00	\$5,527.35
Horry	\$0.00	\$69,736.58	\$69,736.58	16		\$3,198.58	\$0.00	\$0.00	\$0.00
Jasper	\$0.00	\$662,939.69	\$662,939.69	150	\$10,000.00	\$21,412.86	\$0.00	\$0.00	\$18,424.50
Laurens 55	\$0.00	\$890,099.47	\$890,099.47	201	\$0.00	\$43,565.60	\$0.00	\$0.00	\$17,687.52
Laurens 56	\$0.00	\$254,510.67	\$254,510.67	58	\$0.00	\$12,235.14	\$0.00	\$0.00	\$8,843.76
Lee	\$0.00	\$253,888.31	\$253,888.31	57	\$0.00	\$6,947.35	\$0.00	\$0.00	\$14,739.60
Lexington 2	\$0.00	\$1,003,007.87	\$1,003,007.87	227	\$70,000.00	\$36,707.76	\$0.00	\$0.00	\$17,687.52
Lexington 3	\$0.00	\$471,755.59	\$471,755.59	107	\$0.00	\$12,235.92	\$0.00	\$0.00	\$8,843.76
Lexington 4	\$0.00	\$1,000,813.24	\$1,000,813.24	226	\$0.00	\$0.00	\$0.00	\$0.00	\$11,054.70
McCormick	\$0.00	\$74,715.42	\$74,715.42	17	\$0.00	\$0.00	\$0.00	\$0.00	\$8,843.76

District	CERDEP Instruction	CERDEP Instruction	TOTAL	Total Instructional	CERDEP Supplies	CERDEP Curriculum	CERDEP Classroom Expansion	CERDEP Extended Year	CERDEP Summer Program
Marion	\$0.00	\$596,609.69	\$596,609.69	135	\$0.00	\$24,348.17	\$0.00	\$0.00	\$0.00
Marlboro	\$0.00	\$569,619.11	\$569,619.11	129	\$0.00	\$19,921.23	\$0.00	\$0.00	\$17,687.52
Newberry	\$0.00	\$680,889.73	\$680,889.73	154	\$0.00	\$25,169.20	\$0.00	\$0.00	\$23,583.36
Oconee	\$0.00	\$1,461,225.33	\$1,461,225.33	330	\$20,000.00	\$58,120.62	\$0.00	\$0.00	\$0.00
Orangeburg 3	\$0.00	\$580,919.78	\$580,919.78	131	\$0.00	\$21,623.07	\$0.00	\$0.00	\$15,476.58
Orangeburg 4	\$0.00	\$678,989.91	\$678,989.91	154	\$0.00	\$27,530.82	\$0.00	\$88,437.60	\$0.00
Orangeburg 5	\$0.00	\$1,261,121.64	\$1,261,121.64	285	\$0.00	\$45,884.70	\$0.00	\$0.00	\$44,218.80
Richland 1	\$0.00	\$1,828,611.64	\$1,828,611.64	414	\$0.00	\$82,592.46	\$0.00	\$0.00	\$104,101.20
Saluda	\$0.00	\$346,226.22	\$346,226.22	78	\$10,000.00	\$9,025.80	\$0.00	\$0.00	\$11,791.68
Spartanburg 3	\$0.00	\$500,897.96	\$500,897.96	113	\$0.00	\$0.00	\$0.00	\$0.00	\$23,214.87
Spartanburg 4	\$0.00	\$487,697.47	\$487,697.47	110	\$0.00	\$17,707.76	\$0.00	\$0.00	\$0.00
Spartanburg 6	\$0.00	\$1,489,722.67	\$1,489,722.67	337	\$40,000.00	\$67,297.56	\$0.00	\$0.00	\$41,455.13
Spartanburg 7	\$0.00	\$775,455.02	\$775,455.02	175	\$0.00	\$33,202.05	\$0.00	\$0.00	\$99,492.30
Sumter	\$0.00	\$2,288,106.58	\$2,288,106.58	517	\$10,000.00	\$82,592.46	\$0.00	\$0.00	\$0.00
Williamsburg	\$0.00	\$636,178.40	\$636,178.40	144	\$0.00	\$29,229.64	\$0.00	\$0.00	\$11,791.68
York 1		\$771,098.53	\$771,098.53	174	\$0.00	\$20,458.00	\$0.00	\$0.00	\$0.00
TOTAL	\$12,166,133.95	\$31,121,358.20	\$43,287,492.15	9,789	\$260,000.00	\$1,370,769.07	\$97,078.69	\$253,877.88	\$803,799.65
Adjustments			(\$3,333.00)		(\$40,000.00)		\$40,000.00	(\$88,437.88)	(\$17,687.65)
Program Totals:			\$43,284,159.15		\$220,000.00		\$137,078.69	\$165,440.00	\$786,112.00
Source: https://ed.sc.gov/finance/financial-services/payment-information/monthly-payments-to-districts/fiscal Year 2017-18 , July 13th month									

Note: SCDE's Office of Finance provided these "adjustments" to the EOC.

**Appendix B: CERDEP Public Students Assessed
Twice During School Year 2017-18 by District**

District	Count	District	Count
Abbeville	92	Georgetown	265
Aiken	577	Greenwood 50	263
Allendale	42	Greenwood 51	54
Anderson 2	36	Greenwood 52	36
Anderson 3	91	Hampton 1	89
Anderson 5	373	Hampton 2	37
Bamberg 1	38	Horry	15
Bamberg 2	21	Jasper	145
Barnwell 19	19	Laurens 55	251
Barnwell 29	20	Laurens 56	79
Barnwell 45	58	Lee	68
Berkeley	1026	Lexington 2	208
Calhoun	68	Lexington 3	49
Cherokee	334	Lexington 4	211
Chester	112	McCormick	26
Chesterfield	236	Marion	156
Clarendon 1	38	Marlboro	120
Clarendon 2	99	Newberry	101
Clarendon 3	52	Oconee	387
Colleton	217	Orangeburg 3	137
Darlington	275	Orangeburg 4	162
Dillon 3	93	Orangeburg 5	289
Dillon 4	118	Richland 1	909
Dorchester 4	110	Saluda	77
Edgefield	114	Spartanburg 3	93
Fairfield	128	Spartanburg 4	151
Florence 1	320	Spartanburg 6	397
Florence 2	44	Spartanburg 7	201
Florence 3	94	Sumter	516
Florence 4	28	Williamsburg	135
Florence 5	39	York 1	194
Total		10,733	

**Appendix C: CERDEP Public Students Assessed
Twice During School Year 2017-18 by District and School**

District	School	Students Assessed
Abbeville 60	John C Calhoun Elem	17
Abbeville 60	Cherokee Trail Elem	20
Abbeville 60	Diamond Hill Elem	18
Abbeville 60	Long Cane Primary	37
Allendale 01	Allendale/Fairfax Elem	42
Aiken 01	Jefferson Elem	44
Aiken 01	Aiken Elem	37
Aiken 01	Belvedere Elem	2
Aiken 01	J D Lever Elem	37
Aiken 01	Clearwater Elem	36
Aiken 01	Busbee Corbett Elem/Mid	40
Aiken 01	East Aiken School of the Arts	20
Aiken 01	Gloverville Elem	42
Aiken 01	Greendale Elem	36
Aiken 01	Hammond Hill Elem	20
Aiken 01	Millbrook Elem	25
Aiken 01	North Aiken El	38
Aiken 01	North Augusta Elem	26
Aiken 01	Warrenville Elem	20
Aiken 01	Oakwood-Windsor Elem	35
Aiken 01	Redcliffe Elem	39
Aiken 01	Mossy Creek Elem	21
Aiken 01	Ridge Spring Monetta Elem	37
Aiken 01	Horse Creek Academy	22
Anderson 02	Marshall Primary	29
Anderson 02	Honea Path Elem	7
Anderson 03	Iva Elem	33
Anderson 03	Starr Elem	28
Anderson 03	Flat Rock Elem.	30
Anderson 05	Homeland Park Primary	56
Anderson 05	Whitehall Elementary	39

District	School	Students Assessed
Anderson 05	North Pointe Elementary	58
Anderson 05	West Market School of Early Ed.	131
Anderson 05	South Fant School of Early Ed.	89
Bamberg 01	Richard Carroll Elem.	38
Bamberg 02	Denmark-Olar Elem	21
Barnwell 19	Macedonia Elem	19
Barnwell 29	Kelly Edwards Elem	20
Barnwell 45	Barnwell Primary	58
Berkeley 01	Berkeley Elem	57
Berkeley 01	Boulder Bluff Elem	57
Berkeley 01	Cainhoy Elementary	23
Berkeley 01	Cross Elem	36
Berkeley 01	College Park Elem	64
Berkeley 01	J K Gourdin Elem	12
Berkeley 01	Sangaree Elem	73
Berkeley 01	Henry E Bonner Elem	45
Berkeley 01	St Stephen Elem	38
Berkeley 01	Whitesville Elem	63
Berkeley 01	Marrington Elementary School	69
Berkeley 01	Devon Forest Elem	74
Berkeley 01	Hanahan Elem	71
Berkeley 01	Westview Primary	150
Berkeley 01	Goose Creek Primary	85
Berkeley 01	Daniel Island School	7
Berkeley 01	Cane Bay Elementary	43
Berkeley 01	Nexton Elementary	39
Berkeley 01	Philip Simmons Elementary	20
Calhoun 01	Sandy Run School	27
Calhoun 01	St Matthews K-8 School	41
Cherokee 01	Corinth Elem	37
Cherokee 01	Draytonville Elem	17
Cherokee 01	Mary Bramlett Elem	12
Cherokee 01	Mary Bramlett Elem	1
Cherokee 01	Goucher Elem	16
Cherokee 01	B D Lee Elem	38
Cherokee 01	B D Lee Elem	2
Cherokee 01	Luther L Vaughan Elem	20

District	School	Students Assessed
Cherokee 01	Limestone/Central Elem	36
Cherokee 01	Grassy Pond Elem	58
Cherokee 01	Northwest Elem	37
Cherokee 01	Blacksburg Primary	60
Chester 01	Great Falls Elem	12
Chester 01	Lewisville Elem	36
Chester 01	Chester Park Elem of Inquiry	20
Chester 01	Chester Park Elem. of Arts	18
Chester 01	Chester Park Elem Literacy/Tec	26
Chesterfield 01	Cheraw Primary	60
Chesterfield 01	Edwards Elem	40
Chesterfield 01	Jefferson Elem	24
Chesterfield 01	Petersburg Primary	54
Chesterfield 01	McBee Elem	20
Chesterfield 01	Plainview Elem	18
Chesterfield 01	Ruby Elem	20
Clarendon 01	Summerton Early Childhood Ctr	38
Clarendon 02	Manning Early Childhood Ctr	99
Clarendon 03	Walker-Gamble Elem	52
Colleton 01	Bells Elem	19
Colleton 01	Black St Early Childhood Ctr	139
Colleton 01	Cottageville Elem	40
Colleton 01	Hendersonville Elem	19
Darlington 01	Cain Elem	39
Darlington 01	Lamar Elem	37
Darlington 01	Pate Elem	40
Darlington 01	Rosenwald Elem/Middle	13
Darlington 01	St Johns Elem	39
Darlington 01	Southside Early Childhood Center	107
Dillon 03	Latta Elementary	93
Dillon 04	Lake View Elementary	19
Dillon 04	East Elementary	40
Dillon 04	South Elementary	19
Dillon 04	Stewart Heights Elementary	40
Dorchester 04	Harleyville Elem	19
Dorchester 04	Williams Memorial Elem	77
Dorchester 04	Clay Hill Elem	14

District	School	Students Assessed
Edgefield 01	Douglas Elem	19
Edgefield 01	Johnston Elem	26
Edgefield 01	W E Parker Elem	35
Edgefield 01	Merriwether Elem	34
Fairfield 01	Kelly Miller Elem	20
Fairfield 01	McCrorey-Liston School of Tech	17
Fairfield 01	Geiger Elem	14
Fairfield 01	Fairfield Elementary	57
Fairfield 01	Fairfield Magnet For Math/Sci	20
Florence 01	McLaurin Elementary	87
Florence 01	Theodore Lester Elem	14
Florence 01	North Vista Elem	30
Florence 01	Dewey-Carter Elem	38
Florence 01	Alfred Rush Academy	51
Florence 01	CDC at Woods Road	100
Florence 02	Hannah-Pamplico Elem/Middle	44
Florence 03	J C Lynch Elem	17
Florence 03	Olanta Elem	17
Florence 03	Scranton Elem	20
Florence 03	Lake City ECC	40
Florence 04	Brockington Elem	28
Florence 05	Johnsonville Elem	39
Georgetown 01	Andrews Elem	49
Georgetown 01	Browns Ferry Elem	17
Georgetown 01	Pleasant Hill Elem	17
Georgetown 01	Kensington Elem	23
Georgetown 01	Maryville Elem	25
Georgetown 01	McDonald Elem	49
Georgetown 01	Plantersville Elem	12
Georgetown 01	Sampit Elem	34
Georgetown 01	Waccamaw Elem	39
Greenwood 50	Eleanor S. Rice Elem.	14
Greenwood 50	Lakeview Elem	31
Greenwood 50	Merrywood Elem	6
Greenwood 50	Greenwood Early Childhood Ctr	212
Greenwood 51	Ware Shoals Primary	54
Greenwood 52	Ninety-Six Primary	36

District	School	Students Assessed
Hampton 01	Varnville Elementary	74
Hampton 01	Fennell Elem	15
Hampton 02	Estill Elem	37
Horry 01	Academy of Hope Charter	15
Jasper 01	Hardeeville Elem	73
Jasper 01	Ridgeland Elem	72
Laurens 55	Ford Elem	46
Laurens 55	E B Morse Elem	37
Laurens 55	Laurens Elem	63
Laurens 55	Waterloo Elem	22
Laurens 55	Gray Court-Owings Elem/Mid	50
Laurens 55	Hickory Tavern Elem/Mid	33
Laurens 56	M S Bailey Child Dev Ctr	79
Lee 01	Bishopville Primary	38
Lee 01	Lower Lee Elem	18
Lee 01	West Lee Elem	12
Lexington 02	B C No 1 Elem	17
Lexington 02	Springdale Elem	25
Lexington 02	Congaree/Wood Early C Ctr	109
Lexington 02	Cayce Elementary	57
Lexington 03	Batesburg-Leesville Primary	49
Lexington 04	Lexington Four Early Childhood	211
McCormick 01	McCormick Elem	26
Marion 10	North Mullins Primary	156
Marlboro 01	Bennettsville Primary	40
Marlboro 01	McColl Elem/Middle	36
Marlboro 01	Clio Elem	10
Marlboro 01	Wallace Elem/Middle	25
Marlboro 01	Blenheim Elem/Middle	9
Newberry 01	Boundary St Elem	29
Newberry 01	Gallman Elem	3
Newberry 01	Pomaria/Garmany Elem	13
Newberry 01	Little Mountain Elem	2
Newberry 01	Reuben Elem	20
Newberry 01	Newberry Elem	24
Newberry 01	Whitmire Community Elem	4
Newberry 01	Prosperity-Rikard Elem	6

District	School	Students Assessed
Oconee 01	Keowee Elem	39
Oconee 01	Northside Elem	39
Oconee 01	James M Brown Elem	58
Oconee 01	Ravenel Elem	42
Oconee 01	Tamassee-Salem Elem	19
Oconee 01	Walhalla Elem	25
Oconee 01	Westminster Elem	33
Oconee 01	Fair-Oak Elem	42
Oconee 01	Orchard Park Elem	42
Oconee 01	Blue Ridge Elementary	48
Orangeburg 03	Holly Hill Elem	43
Orangeburg 03	St James-Gaillard Elem	38
Orangeburg 03	Vance-Providence Elem	19
Orangeburg 03	Elloree Elem	37
Orangeburg 04	Edisto Primary	115
Orangeburg 04	Lockett Elementary	30
Orangeburg 04	Hunter Kinard Tyler Elem	17
Orangeburg 05	Bethune-Bowman Elem	37
Orangeburg 05	Marshall Elem	76
Orangeburg 05	Brookdale Elem	17
Orangeburg 05	Sheridan Elem	49
Orangeburg 05	Whittaker Elem	38
Orangeburg 05	Dover Elem	24
Orangeburg 05	Rivelon Elementary	48
Richland 01	Arden Elem	31
Richland 01	Bradley Elem	47
Richland 01	Annie Burnside Elem	18
Richland 01	Caughman Rd Elem	53
Richland 01	Gadsden Elem	19
Richland 01	A J Lewis Greenview Elem	35
Richland 01	Hopkins Elem	27
Richland 01	Horrell Hill Elem	45
Richland 01	Hyatt Park Elem	38
Richland 01	Logan Elem	39
Richland 01	Meadowfield Elem	34
Richland 01	Mill Creek Elem	27
Richland 01	A C Moore Elem	26

District	School	Students Assessed
Richland 01	E.E Taylor Elem	20
Richland 01	S Kilbourne Elem	43
Richland 01	Sandel Elem	30
Richland 01	Rhame Elem	33
Richland 01	J P Thomas Elem	28
Richland 01	Webber Elem	17
Richland 01	Carver-Lyon Elem	61
Richland 01	Burton Pack Elem	39
Richland 01	Pine Grove Elem	39
Richland 01	Watkins-Nance Elem	54
Richland 01	Forest Heights Elem	33
Richland 01	Brockman Elem	45
Richland 01	Carolina Charter for Inquiry	28
Saluda 01	Saluda Primary	58
Saluda 01	Hollywood Elem	19
Spartanburg 03	Cannons Elem	18
Spartanburg 03	Cowpens Elem	37
Spartanburg 03	Clifdale Elem	20
Spartanburg 03	Pacolet Elem	18
Spartanburg 04	Woodruff Primary	151
Spartanburg 06	Arcadia Elem	233
Spartanburg 06	Fairforest Elem	6
Spartanburg 06	Pauline Glenn Springs Elem	19
Spartanburg 06	Jesse S Bobo Elem	30
Spartanburg 06	West View Elem	37
Spartanburg 06	Woodland Heights Elem	19
Spartanburg 06	Roebuck Elem	32
Spartanburg 06	Anderson Mill Elem	21
Spartanburg 07	E P Todd School	21
Spartanburg 07	Cleveland Academy of Leadership	36
Spartanburg 07	Meeting St. Academy-Spartanburg	37
Spartanburg 07	District 7 Early Learning Ctr	107
Sumter 01	Cherryvale Elementary	34
Sumter 01	FJ Delaine Elementary	16
Sumter 01	RE Davis Elementary	28
Sumter 01	Manchester Elementary	35
Sumter 01	Oakland Primary	86

District	School	Students Assessed
Sumter 01	Rafting Creek Elementary	17
Sumter 01	Alice Drive Elementary	18
Sumter 01	Crosswell Drive Elementary	45
Sumter 01	Lemira Elementary	20
Sumter 01	Millwood Elementary	38
Sumter 01	Wilder Elementary	19
Sumter 01	Willow Drive Elementary	36
Sumter 01	Pocalla Springs Elementary	69
Sumter 01	Kingsbury Elementary	55
Williamsburg 01	Anderson Primary	42
Williamsburg 01	Greeleyville Elem	19
Williamsburg 01	Hemingway Elem	53
Williamsburg 01	DP Cooper Charter	21
York 01	Jefferson Elem	35
York 01	Hickory Grove-Sharon Elem	18
York 01	Hunter Street Elem	60
York 01	Cotton Belt Elem	43
York 01	Harold C. Johnson Elementary	38
	TOTAL	10,733

Source: SCDE Response to EOC Data Request, September 2018.

Note: CERDEP students in Horry were enrolled in a charter school that elected to participate in the program.

**Appendix D: CERDEP Expansion in Public School Districts
During 2017-18 School Year**

District	Additional Classes	Extended Year	Summer Program
Aiken	X		X
Allendale			X
Anderson 2			X
Barnwell 19			X
Barnwell 29			X
Calhoun			X
Chester			X
Clarendon 1	X		X
Clarendon 3		X	
Colleton			X
Darlington			X
Dorchester 4			X
Edgefield			X
Florence 1		X	
Florence 3			X
Florence 4			X
Greenwood 50		X	X
Hampton 1	X		X
Hampton 2			X
Jasper			X
Lee			X
Lexington 2			X
Lexington 3			X
Lexington 4			X
Marlboro			X
Newberry			X
Orangeburg 3			X
Orangeburg 4			X
Orangeburg 5			X
Richland 1			X
Saluda			X
Spartanburg 3			X
Spartanburg 6			X
Spartanburg 7			X
Williamsburg			X
TOTAL	3	3	32

Source: SCDE September 4, 2018 CERDEP Data Response.

Appendix E: Non-public Providers Participating in CERDEP Expansion during 2017-18 School Year

Extended Year Provided by Non-public Providers

Provider Name	County	Student Enrollment Number as of June 28, 2018
New Jerusalem Missionary Baptist Church CDC	Barnwell	22
The Children's Center	Beaufort	5
The House of Smiles	Berkeley	7
Foster's Child Care Center	Charleston	10
Eagle Academy	Cherokee	11
Richburg Child Development Center	Chester	1
True Saints Christian Day Care	Darlington	12
Little Smurfs Daycare	Georgetown	19
Small Minds of Tomorrow	Georgetown	13
Stephanie's Preschool Blessing & Afterschool	Kershaw	17
Big Blue Marble Academy 4	Laurens	12
Newberry CDC	Newberry	17
Wright's Daycare	Orangeburg	7
Tiny Creators Learning Center	Richland	10
The Leaders of Tomorrow CDC	Richland	7
Big Blue Marble Academy 6	Spartanburg	4
Creative Learning Kids CDC	Spartanburg	9
Sunshine House 16	Spartanburg	5
Sunshine House 17	Spartanburg	10
ZL Madden Head Start, PCA	Spartanburg	18
Love Covenant CDC	Sumter	7
Little Smurf Too	Williamsburg	10
Agape United Daycare	York	12
Total Number of Children Enrolled		245

Source: SC First Steps, September 2018 Response to EOC Data Request.

Summer School Classes Provided by Non-public Providers

Provider Name	Number of Summer School Classes during Summer 2018	County	Enrollment Number as of June 28, 2018
A Bless Lesson Learned	1	Aiken	10
Betty's Creative Corner	1	Aiken	14
Busy Bees Childcare and Preschool	1	Aiken	14
Family Affair Childcare, Aiken	1	Aiken	16
Family Affair Childcare, N. Augusta	1	Aiken	12
Great Creations CDC	1	Aiken	8
Learning on Main	1	Aiken	17
Sunshine House 05	1	Aiken	9
True Foundations	1	Aiken	8
Sunshine House 57	1	Aiken	12
Tiny Treasures Childcare	1	Aiken	5
Allendale Early Learning	1	Allendale	4
Anderson Prep Preschool	1	Anderson	1
Developmental Center for Exceptional Children	1	Anderson	9
Welfare Baptist Church Day Care	1	Anderson	8
Progressive Family Life	1	Bamberg	2
Bedford's Stay and Play	1	Barnwell	3
Betty's Day Care & Preschool	1	Berkeley	5
LaPetite Academy 7514	1	Berkeley	16
Prosperity Childcare	1	Darlington	20
Kids Limited CDC	2	Dillon	27
Little Treasures Christian Learning Ctr	1	Dillon	13
Mothers Love Daycare	1	Dillon	10
Majestic Academy	1	Fairfield	5
Angel's Inn Child Care	1	Florence	6
Antioch 3 & 4K Development Center	1	Florence	14
Excellent Learning Preschool	3	Florence	43
Kids' Corner Early Learning Academy	2	Florence	17
LaPetite Academy 7504	1	Florence	15
Little Creations Learning Center	2	Florence	19
Precious One Learning Center	1	Florence	8
Sunshine House 30	1	Florence	14
Thelma Brown Head Start Center	1	Florence	8
Zion Canaan CDC	1	Florence	16
Sampit Community Center	1	Georgetown	6
Sunshine House 02	1	Greenwood	4
Sunshine House 134	1	Greenwood	10
Children's Keeper Learning Center	1	Hampton	11
Anchors Away CDC	1	Horry	14
ATM Daycare	1	Horry	7
Carolina Forest CDC	1	Horry	15

Provider Name	Number of Summer School Classes during Summer 2018	County	Enrollment Number as of June 28, 2018
Coastal Children's Academy, Inc.	1	Horry	14
Coastal Kids Academy of SC	1	Horry	15
Grissett's CDC	2	Horry	19
Hunter's Ridge Child Care	1	Horry	12
Kiddie Junction	1	Horry	10
Little Blessings CDC	1	Horry	5
Main Street CDC	1	Horry	3
My Sunshine CDC	1	Horry	6
Sherman's Child Development Center	1	Horry	12
The Learning Station	1	Horry	15
Lugoff Early Learning CDC	1	Kershaw	17
Stepping Stones Learning Academy	1	Laurens	9
Thornwell CDC	1	Laurens	16
Bishopville Lee Child Care	1	Lee	17
5 Star Academy	1	Lexington	12
Big Blue Marble Academy 3	1	Lexington	11
Brookland Academy CDC	1	Lexington	11
Hartman Hall CDC	1	Lexington	12
Irmo Academy	1	Lexington	6
La Petite Academy 7503	1	Lexington	4
MEGA CDC	1	Lexington	4
Seven Oaks Kids Academy	1	Lexington	11
Training the Children Christian Center	1	Lexington	2
Wee Care CDC	1	Lexington	4
Agapeland YEP Center	1	Marion	10
McGill's Bundles of Joy	2	Marion	29
Sugar Bears Daycare	1	Marion	7
Troy-Johnson Learning Korner	1	Marion	20
First United Methodist Children's Ctr	1	Marlboro	9
Our Clubhouse	1	Oconee	8
Brighter Children Learning Center	1	Orangeburg	10
J & J Child Care	1	Orangeburg	10
Kidz Will Be Kidz	1	Orangeburg	7
Wright Way CDC	1	Orangeburg	18
Ayes's Kinderoo Care CDC	1	Richland	10
Belvedere Early Learning Center	1	Richland	9
Bethel Learning Center	1	Richland	12

Provider Name	Number of Summer School Classes during Summer 2018	County	Enrollment Number as of June 28, 2018
Care Bear Learning Center	1	Richland	4
Children's Garden	1	Richland	10
Education Express Center for Learning	1	Richland	14
Fantasy Island Child Care	1	Richland	11
Kinder Academy	2	Richland	19
Children's World 5	1	Richland	12
Children's World 7	1	Richland	11
First Nazareth Child Development Ctr	1	Richland	9
Grace Academy	1	Richland	8
LaPetite Academy 7501	1	Richland	13
Myers Nursery & Daycare	1	Richland	7
Spring Valley Early Learning Academy	1	Richland	7
Sunshine House 21	1	Richland	13
Sunshine House 22	1	Richland	19
Sunshine House 23	1	Richland	3
Trinity Learning Center	1	Richland	2
Wonderful Beginnings	1	Richland	7
Abundant Blessings CDC	1	Spartanburg	8
Exceptional Child Academy	1	Spartanburg	9
Legacy Christian School	1	Spartanburg	13
Mother Goose Day Care	1	Spartanburg	4
Precious Little Angels Day Care	1	Spartanburg	14
The Children's Academy	1	Spartanburg	18
Care-A-Lot Day Care Center	1	Sumter	10
Itsy Bitsy Steps Learning	1	Sumter	8
Jehovah Missionary Baptist Church Academic School	2	Sumter	12
JKS Academy, LLC	1	Sumter	6
Kid's Academy	1	Sumter	14
New Beginnings at Warth CCC	1	Sumter	19
Shaw AFB Child Development Center	1	Sumter	10
Vanessa's Playland	2	Sumter	20
Mon-Aetna Baptist Church CEC	1	Union	14
Union Church of God Child Dev Ctr	1	Union	11
Wilson's Daycare	1	Williamsburg	12
House of Joy	1	York	2
Small World Academy	1	York	4
Total	124		1,258

Source: SC First Steps, September 2018 Response to EOC Data Request

Appendix F: 2017-18 Four-Year-Old Children in Poverty Served by Publicly-Funded Programs, by School District or County

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
School District	Pupil Enrollment	Percent of County Pupil Enrollment	Estimated Number of 4-Year-Olds	District Poverty Index	Estimated Number of 4-Year-Olds in Poverty	4-Year-Olds Served in Head Start	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) By District Payments	Non-Public State Funded Full-Day 4K Enrolled in a Center in a CERDEP-Eligible District (First Steps CERDEP)	Subtotal of 4 Year Olds Receiving Head Start or CERDEP (Columns 7-9)	Percent of 4-Year-Olds in Poverty Receiving Services	Non-Public State-Funded Full-Day 4K Enrolled in Center in a non-CERDEP District (First Steps CERDEP)	4-Year-Olds in Poverty (Non CERDEP Districts)	4-Year-Olds in SC Child Care Voucher System	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) by Assessment Data
Abbeville	2,905		241	69.05%	166	40	87		127	76%			8	92
Aiken	23,812		1,860	62.67%	1,166	219	449	164	832	71%			193	577
Allendale	1,100		88	92.76%	82	21	34		55	67%			9	42
Anderson 1	9,753	34.21%	785	50.03%	393	119			119	30%	30	170	89	
Anderson 2	842	2.95%	68	62.28%	42	10	97		107	254%			8	36
Anderson 3	2,471	8.67%	199	72.71%	145	30	103		133	92%			22	91
Anderson 4	2,783	9.76%	224	60.59%	136	34			34	25%		46	25	
Anderson 5	12,663	44.41%	1,020	64.35%	656	155	396		551	84%			115	373
Bamberg 1	1,313	67.34%	86	78.57%	67	30	20	24	73	109%			13	38
Bamberg 2	637	32.68%	41	91.87%	38	14	26	11	52	136%			6	21
Barnwell 19	590	16.53%	40	89.21%	36	17	19	6	42	117%			3	19
Barnwell 29	872	24.44%	59	76.86%	45	24	19	9	52	116%			4	20
Barnwell 45	2,106	59.02%	142	75.91%	108	59	39	22	120	111%			10	58
Beaufort	21,145		2,012	56.70%	1,141	65			65	6%	4	625	96	
Berkeley	33,482		2,696	57.68%	1,555	190	900	49	1,139	73%			175	1,026
Calhoun	1,665		142	80.31%	114	5	75	11	91	80%			2	68
Charleston	46,140		4,799	53.27%	2,556	299			299	12%	10	1,439	401	

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
School District	Pupil Enrollment	Percent of County Pupil Enrollment	Estimated Number of 4-Year-Olds	District Poverty Index	Estimated Number of 4-Year-Olds in Poverty	4-Year-Olds Served in Head Start	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) By District Payments	Non-Public State Funded Full-Day 4K Enrolled in a Center in a CERDEP-Eligible District (First Steps CERDEP)	Subtotal of 4 Year Olds Receiving Head Start or CERDEP (Columns 7-9)	Percent of 4-Year-Olds in Poverty Receiving Services	Non-Public State-Funded Full-Day 4K Enrolled in Center in a non-CERDEP District (First Steps CERDEP)	4-Year-Olds in Poverty (Non CERDEP Districts)	4-Year-Olds in SC Child Care Voucher System	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) by Assessment Data
Cherokee	8,499		663	72.28%	479	112	154	22	288	60%			57	334
Chester	5,069		363	78.03%	283	178	196	11	385	136%			40	112
Chesterfield	6,884		507	74.10%	376	112	136	7	255	68%			14	236
Clarendon 1	715	15.16%	49	90.50%	44	12	39		51	115%			3	38
Clarendon 2	2,789	59.14%	190	86.12%	163	46	89		135	82%			11	99
Clarendon 3	1,213	25.71%	83	62.23%	51	20	34		54	105%			5	52
Colleton	5,429		454	82.05%	373	30	230		260	70%			37	217
Darlington	9,683		743	77.04%	572	137	287	41	465	81%			68	275
Dillon 3	1,574	28.05%	119	71.39%	85	22	67	14	103	121%			15	93
Dillon 4	4,039	71.96%	307	85.79%	263	57	120	37	214	81%			38	118
Dorchester 2	25,481	91.83%	1,713	50.50%	865	5			5	1%	7	393	93	
Dorchester 4	2,268	8.17%	152	75.01%	114	0	97		97	85%			8	110
Edgefield	3,364		185	64.98%	120	16	113		129	107%			11	114
Fairfield	2,498		220	85.73%	189		150		150	80%			8	128
Florence 1	15,899	71.58%	1,215	66.36%	806	140	420	156	716	89%			208	320
Florence 2	1,117	5.03%	85	71.07%	61	10	42	11	63	104%			15	44
Florence 3	3,363	15.14%	257	87.90%	226	30	97	33	160	71%			44	94
Florence 4	644	2.90%	49	91.92%	45	6	31	6	43	95%			8	28
Florence 5	1,188	5.35%	91	69.76%	63	10	39	12	61	97%			16	39

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
School District	Pupil Enrollment	Percent of County Pupil Enrollment	Estimated Number of 4-Year-Olds	District Poverty Index	Estimated Number of 4-Year-Olds in Poverty	4-Year-Olds Served in Head Start	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) By District Payments	Non-Public State Funded Full-Day 4K Enrolled in a Center in a CERDEP-Eligible District (First Steps CERDEP)	Subtotal of 4 Year Olds Receiving Head Start or CERDEP (Columns 7-9)	Percent of 4-Year-Olds in Poverty Receiving Services	Non-Public State-Funded Full-Day 4K Enrolled in Center in a non-CERDEP District (First Steps CERDEP)	4-Year-Olds in Poverty (Non CERDEP Districts)	4-Year-Olds in SC Child Care Voucher System	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) by Assessment Data
Georgetown	9,063		528	68.39%	361	86	319	50	455	126%			56	265
Greenville	73,485		6,409	53.22%	3,411	563			563	17%		1,346	486	
Greenwood 50	8,668	78.25%	672	72.26%	486	106	217	39	363	75%			64	263
Greenwood 51	883	7.98%	69	76.04%	52	11	38	4	53	101%			7	54
Greenwood 52	1,525	13.77%	118	60.54%	72	19	40	7	66	92%			11	36
Hampton 1	2,177	76.47%	158	75.84%	119	18	92	11	120	101%			11	89
Hampton 2	670	23.55%	49	92.09%	45	5	37	3	46	102%			3	37
Horry	43,357		3,170	65.35%	2,072	142	16	297	455	22%		905	492	15
Jasper	2,498		369	87.33%	322	45	150	17	212	66%			18	145
Kershaw	10,507		728	59.08%	430	74		39	113	26%		104	64	
Lancaster	13,017		990	55.28%	547	86			86	16%		149	98	
Laurens 55	5,493	65.33%	517	72.93%	377	16	201		217	57%			41	251
Laurens 56	2,916	34.67%	274	79.39%	218	8	58		66	30%			21	79
Lee	1,857		188	91.43%	172	39	57	20	116	67%			29	68
Lexington 1	25,511	45.58%	1,460	44.57%	651	33			33	5%	120	333	139	
Lexington 2	8,603	15.37%	492	73.84%	364	11	227		238	66%			47	208
Lexington 3	1,940	3.47%	111	71.14%	79	3	107		110	139%			11	49
Lexington 4	3,191	5.70%	183	79.22%	145	4	226		230	159%			17	211

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
School District	Pupil Enrollment	Percent of County Pupil Enrollment	Estimated Number of 4-Year-Olds	District Poverty Index	Estimated Number of 4-Year-Olds in Poverty	4-Year-Olds Served in Head Start	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) By District Payments	Non-Public State Funded Full-Day 4K Enrolled in a Center in a CERDEP-Eligible District (First Steps CERDEP)	Subtotal of 4 Year Olds Receiving Head Start or CERDEP (Columns 7-9)	Percent of 4-Year-Olds in Poverty Receiving Services	Non-Public State-Funded Full-Day 4K Enrolled in Center in a non-CERDEP District (First Steps CERDEP)	4-Year-Olds in Poverty (Non CERDEP Districts)	4-Year-Olds in SC Child Care Voucher System	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) by Assessment Data
Lexington 5	16,724	29.88%	957	41.50%	397	22			22	5%		176	91	
McCormick	728		62	84.18%	52	12	17		29	56%			1	26
Marion	4,380		356	90.70%	323	60	135	77	272	84%			123	156
Marlboro	3,817		292	83.99%	245	85	129	9	223	91%			33	120
Newberry	5,813		398	69.68%	277	78	154	30	262	94%			24	101
Oconee	10,037		722	64.33%	464	72	330	24	426	92%			82	387
Orangeburg 3	2,522	20.58%	196	89.25%	175	15	131	14	160	91%			23	137
Orangeburg 4	3,495	28.52%	272	77.34%	210	21	154	19	194	92%			32	162
Orangeburg 5	6,239	50.91%	485	85.82%	416	37	285	35	357	86%			58	289
Pickens	15,704		1,169	59.28%	693	168			168	24%	2	317	125	
Richland 1	22,851	45.62%	2,123	75.45%	1,602	70	414	216	700	44%			274	909
Richland 2	27,243	54.38%	2,531	52.65%	1,333	84			84	6%		457	327	
Saluda	2,232		218	75.14%	164	35	78	11	124	76%			6	77
Spartanburg 1	4,857	10.47%	400	57.70%	231	40			40	17%	119	117	36	
Spartanburg 2	9,754	21.03%	803	57.31%	460	81			81	18%		162	72	
Spartanburg 3	2,769	5.97%	228	69.65%	159	23	113		136	86%			21	93
Spartanburg 4	2,666	5.75%	220	65.98%	145	22	110		132	91%			20	151

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
School District	Pupil Enrollment	Percent of County Pupil Enrollment	Estimated Number of 4-Year-Olds	District Poverty Index	Estimated Number of 4-Year-Olds in Poverty	4-Year-Olds Served in Head Start	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) By District Payments	Non-Public State Funded Full-Day 4K Enrolled in a Center in a CERDEP-Eligible District (First Steps CERDEP)	Subtotal of 4 Year Olds Receiving Head Start or CERDEP (Columns 7-9)	Percent of 4-Year-Olds in Poverty Receiving Services	Non-Public State-Funded Full-Day 4K Enrolled in Center in a non-CERDEP District (First Steps CERDEP)	4-Year-Olds in Poverty (Non CERDEP Districts)	4-Year-Olds in SC Child Care Voucher System	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) by Assessment Data
Spartanburg 5	8,241	17.77%	679	54.60%	371	68			68	18%		167	61	
Spartanburg 6	10,973	23.66%	904	65.30%	590	91	337		428	73%			81	397
Spartanburg 7	7,124	15.36%	587	70.71%	415	59	175		234	56%			53	201
Sumter	16,077		1,386	72.71%	1,008	250	517	132	899	89%			234	516
Union	3,868		304	76.85%	234	81		36	117	50%		63	24	
Williamsburg	3,738		352	90.44%	318	100	144	42	286	90%			65	135
York 1	5,004	11.25%	332	67.26%	224	53	174		227	102%	17		31	194
York 2	7,494	16.85%	498	36.20%	180	79			79	44%		120	46	
York 3	17,086	38.41%	1,135	60.06%	682	181			181	27%		373	105	
York 4	14,902	33.50%	990	21.47%	213	158			158	74%		65	92	
SC Public Charter School District	25,046	56.30%	1,664	53.50%	890				0	0%		60		
SC School for Deaf and Blind												5		
TOTAL			58,694	61.18%	36,018	5,589	9,787	1,778	17,154	48%	309	7,592	5,633	10,733

Sources of Data:

- Column 2: Pupil Enrollment SY 2018 based on 135-Day Average Daily Membership accessed at: <https://apps.ed.sc.gov/agency/cfo/finance/Financial-Services/reports/Reports/PARTS/MembershipCountsForm>.
- Column 3: Calculated by dividing district pupil enrollment (Column 2) by the total enrollment number for the county.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
School District	Pupil Enrollment	Percent of County Pupil Enrollment	Estimated Number of 4-Year-Olds	District Poverty Index	Estimated Number of 4-Year-Olds in Poverty	4-Year-Olds Served in Head Start	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) By District Payments	Non-Public State Funded Full-Day 4K Enrolled in a Center in a CERDEP-Eligible District (First Steps CERDEP)	Subtotal of 4 Year Olds Receiving Head Start or CERDEP (Columns 7-9)	Percent of 4-Year-Olds in Poverty Receiving Services	Non-Public State-Funded Full-Day 4K Enrolled in Center in a non-CERDEP District (First Steps CERDEP)	4-Year-Olds in Poverty (Non CERDEP Districts)	4-Year-Olds in SC Child Care Voucher System	Public Schools State-Funded Full-Day 4K (SCDE CERDEP) by Assessment Data

- Column 4: Estimated number of four-year-olds is based on births by county in year 2013 as reported by DHEC <http://scangis.dhec.sc.gov/scan/bdp/tables/birthtable.aspx>; -Column 5: Poverty Index is the district poverty index for school year 2017-18 as reported on the 2017 district report card ratings. May be accessed at <https://ed.sc.gov/data/report-cards/state-report-cards/2017/data-files-for-researchers-2017/poverty-index/>
- Column 6: Estimated number of four-year-olds in poverty is the estimated number of four-year-olds multiplied by the Poverty Index. If multiple districts in one county, the average poverty index was used.
- Column 7: Head Start - South Carolina Head Start Census, May 15, 2018, as provided by the SC Head Start Collaboration Office. Data provided by county. EOC analysis estimated number of Head Start children served in each school district by multiplying the total number served by county times the percent of county pupil enrollment (Column 3).
- Column 8: Based FY 2017-18 Current Allocations to School Districts (through October 2017 Monthly Payments) accessed at <https://ed.sc.gov/finance/financial-services/payment-information/monthly-payments-to-districts>. District CERDEP instructional costs (Revenue Codes 3134 and 3541) divided by \$4,422 per pupil reimbursement rate for 2017-18.
- Columns 9 and 12: First Steps CERDEP data are indicated in Columns 9 and 12. First Steps data do not include student district of residence. Where the First Steps data indicated enrollment in a center located in a CERDEP district, data were included in Column 9. If enrollment was in a center located in a non-CERDEP district, data included in Column 12.
- Column 10: Subtotal of four-year-olds receiving formal services, including Head Start, public CERDEP managed by SCDE and non-public CERDEP managed by First Steps where students were enrolled in a center in a district that participated in CERDEP.
- Column 11: Percent of four-year-olds in poverty calculated by dividing "Subtotal of four-year-olds receiving formal services" (Column 10) by "Number of four-year-olds in poverty" (Column 6).
- Column 13: Number of 4K students identified as being in poverty who were assessed at beginning- and end-of-year and attended public schools in districts not participating in CERDEP or not eligible to participate in CERDEP.
- Column 14: SC's Child Care Voucher System for four-year-olds being served between 7/1/17 to 6/30/18, as provided by the Department of Social Services. Data provided by county. EOC analysis estimated number of children receiving vouchers in each school district by multiplying the total number of vouchers per county times the percent of county pupil enrollment.
- Column 15: Estimate of Public Schools State-Funded Full-Day 4K (SCDE CERDEP) is based on number of CERDEP students with beginning- and end-of-year assessment data.

II. Impact: Student-Level Assessment Results, 2017-18 (USC)

In Fiscal Year 2017-18 the General Assembly directed funds toward assessment and related professional development in prekindergarten. These tests measure the early literacy and language development of children in publicly-funded prekindergarten programs. Proviso 1A.63 states:

Each school district and non-public provider participating in a publicly-funded prekindergarten program will administer one of the formative assessments selected by the department to each child eligible for and enrolled in a publicly-funded prekindergarten program during the first forty-five days of the school year and during the last forty-five days of the school year. Accommodations that do not invalidate the results of these assessments must be provided in the manner set forth by the student's Individualized Education Program or 504 Accommodations Plan. The department will provide the assessment data to the Education Oversight Committee. The results of the assessment and the developmental intervention strategies recommended or services needed to address the child's identified needs must also be provided, in writing, to the parent or guardian. The assessment may not be used to deny a student to admission to prekindergarten.²⁰

The South Carolina Department of Education (SCDE) selected three assessments that could be used to assess children in publicly-funded four-year-old kindergarten (4K or CERDEP):

- Individual Growth and Development Indicators of Early Literacy (IGDIs-EL) 2nd Edition Universal Screening (McConnell, Bradfield, & Wackerle-Hollman, 2014);
- Phonological Awareness Literacy Screening (PALS-PreK) (Invernizzi, Sullivan, Meier, & Swank, 2013); and
- Teaching Strategies GOLD, Birth through Third Grade Edition (B3-GOLD; Teaching Strategies GOLD, 2016). For the past three years, training for each of these assessments was provided by the SCDE to school district personnel, who, in turn, trained local district teachers. Non-public CERDEP educators were trained by personnel from Teaching Strategies.

Introduction

All children attending state publicly-funded prekindergarten during the 2017-18 school year were required to be assessed by the same measure at the beginning-of-year (fall) and at the end-of-year (spring). The South Carolina Department of Education (SCDE) provided the data to the EOC and USC on August 31, 2018. This dataset included merged data from the fall and spring test administrations for all prekindergarten students. The data set was analyzed using the same software (SAS) used by SCDE; however, prior to analysis, data were screened to remove cases, which may indicate problematic data (e.g., duplicate identification data, a kindergarten student receiving a prekindergarten test).

²⁰ Proviso 1A.63 of the 2017-18 General Appropriation Act

Members of the USC evaluation team analyzed the 2017-18 prekindergarten data set in December 2018 to provide information for this report. Numbers in the tables were taken from the dataset and include all relevant proportional data for a category and summarize as much of the information as possible from the dataset. Therefore, the numbers may be inconsistent across tables due to factors such as data missing in a specific category, incorrect entry of figures (e.g., keystroke errors, errant recording of child responses), attrition due to child factors (e.g., absences, or a child present to take proportions of a test, but not completing the entire test), or attrition due to mobility (e.g., families moving out of state before conclusion of the school year). The numbers in the report should be taken as approximate values providing an overview of the language and literacy skills of South Carolina's prekindergarten children. As shown in Table 12, roughly 25,000 South Carolina prekindergartners were assessed in school year 2017-18, with slightly more children tested at fall testing than for spring testing.

Table 12
Ethnicities of 4K Children Assessed in 2017-18 School Year

	Fall 2017	Spring 2018
Grade Level	Frequency	Frequency
4K	26,048	25,396

Table 13 shows the ethnicities for prekindergarten (4K) students across South Carolina. The population of preschool children tested was racially/ethnically diverse, and most of the children were African American, White, or Hispanic.

Table 13
Ethnicities of 4K Children Assessed in 2017-18 School Year

Ethnicity	Fall 2017		Spring 2018	
	Frequency	Percent	Frequency	Percent
Asian	388	1.5%	378	1.5%
African American	10,632	41.0%	10,407	41.2%
Hispanic	3,232	12.5%	3,174	12.6%
American Indian	92	0.4%	87	0.3%
Multiracial	1,362	5.3%	1,307	5.2%
Pacific Islander	36	0.1%	33	0.1%
White	10,186	39.3%	9,986	39.1%
Total	25,928	100.0%	25,282	100.0%

Table 14 provides numbers and percentages of prekindergarten children tested during the 2017-18 school year by each of the three authorized instruments. The same assessment given in the fall and spring may provide the percentages of children who made improvements in language and literary skills over the course of the academic year. Nevertheless, comparison of prekindergartners language and literacy results is complicated by the use of three different test instruments, each having unique literacy and language skill domains, performance tasks, scoring systems, and performance standards.

Table 14
Number and Percentage of Children by Test in 2017-18 School Year

Test Name	Fall 2017		Spring 2018	
	Frequency	Percent	Frequency	Percent
B3-GOLD	6,882	26.4%	6,684	26.3%
PALS-PreK	10,934	42.0%	10,547	41.5%
IGDIs-EL	8,232	31.6%	8,165	32.2%
Total 4K Students	26,048	100.0%	25,396	100.0%

Table 15 indicates the numbers and percentages of children in CERDEP and Non-CERDEP programs as well as the numbers and percentages of CERDEP prekindergartners served in non-public (First Steps) and public (SCDE) classrooms.²¹ It should be noted that non-public prekindergartners (First Steps) only were administered the B3-GOLD. Preschoolers in public programs could be evaluated by any of the three instruments, the districts selecting the instrument for use within schools.

Table 15
Number of 4K Children Tested by Setting in the 2017-18 School Year

4K Setting	Fall 2017		Spring 2018	
	Frequency	Percent	Frequency	Percent
Non-public Programs	2,202	8.5%	2,111	8.3%
Public Programs	23,846	91.6%	23,285	91.7%
Total	26,048	100.0%	25,396	100.0%
Non-CERDEP	11,770	45.2%	11,357	44.7%
CERDEP	14,278	54.8%	14,309	55.3%
Total	26,048	100.0%	25,396	100.0%

Prekindergarten (4K) Assessment Results

Individual Growth and Development Indicators of Early Literacy (IGDIs-EL)

IGDIs-EL is an individualized and standardized language and literacy measure designed to support the identification of prekindergartners (ages 4 years, 0 months to 4, years, 11 months) that need additional instruction and intervention in oral language, phonological awareness, alphabet knowledge, and comprehension. IGDIs-EL subtests include:

- Picture Naming (oral language and vocabulary),
- Rhyming (phonological awareness),
- Sound Identification (alphabet knowledge),
- “Which One Doesn’t Belong” (comprehension), and
- Alliteration (phonological awareness). Note the assessment developers advise against administration of Alliteration in the fall).

Each of the five subtests has separate assessment protocols for three testing occasions (i.e., fall,

²¹ “Non-CERDEP” refers to districts not eligible to participate in CERDEP or choosing not to participate.

winter, and spring). In South Carolina, teachers administer IGDIs-EL directly to children in the fall (beginning of year) and spring (end of year). Each IGDIs-EL subtest has three categories of performance: 1. Strong Progress, 2. Moderate Progress, and 3. At Risk Progress.

Table 16 shows the percentages of children's progress on IGDIs-EL by these three performance categories. Readers should note that the bolded percentages in all the following tables indicate the test performance category with the largest proportions of children at a given test time point (i.e., the largest percentage at the fall and spring testings). Because Strong Progress and Moderate Progress indicate proficient status in literacy and language skills, we refer to these categories as "proficient" in discussion and as the last column of the table.

All four of subtests that include fall and spring assessments showed improvements in the proportions of children proficient by the spring. Specifically, during the spring assessment period (i.e., end of year) the proficient categories held substantial majorities of children: Picture Naming 90 percent, Rhyming 75 percent, Sound Identification 80 percent, and "Which One Doesn't Belong?" 89 percent. From fall to spring testing, the percentages of prekindergartners performing in the At-Risk Progress category decreased accordingly. With respect to Alliteration, which is only assessed in the spring, 94 percent of the children performed in the combined proficient categories.

Table 16
IGDIs-EL Subtest Percentages by Benchmark and Time Points in 2017-18 School Year

Testing Period	Children	Strong Progress	Moderate Progress	At Risk Progress	Proficient Progress*
Picture Naming					
Fall	7,999	18%	51%	31%	69%
Spring	8,112	57%	33%	10%	90%
Rhyming					
Fall	6,513	16%	30%	54%	46%
Spring	7,895	50%	24%	25%	74%
Sound Identification					
Fall	7,382	14%	32%	54%	46%
Spring	8,061	50%	30%	20%	80%
"Which One Doesn't Belong?"					
Fall	6,748	24%	35%	41%	59%
Spring	7,913	59%	30%	11%	89%
Alliteration					
Fall*					
Spring	8,029	68%	26%	6%	94%

*Notes: Test developer recommends teachers do not administer Alliteration in the fall to four-year-old students; Proficient Progress is the sum of Strong and Moderate Progress.

Table 17 delineates the three categories of progress for African American, Hispanic, and White children. Again, in the proficient categories, improvements in the children's progress from the fall to spring assessment are evident for the four subtests given at the beginning and end of the year. Specifically, by spring, African American (92 percent), Hispanic (73 percent), and White (95 percent) children were in the proficient range on Picture Naming. For the Rhyming subtest, proportions were African American (73 percent), Hispanic (62 percent), and White (81 percent). On Sound Identification, proficient proportions were African American (78 percent), Hispanic (76 percent), and White (83 percent) children. The "Which One Doesn't Belong?" subtest reported

African American (88 percent), Hispanic (85 percent), and White (91 percent) in the proficient range. For the spring testing of Alliteration, African American (94 percent), Hispanic (92 percent), and White (96 percent) were in the proficient range. Over the set of IGDIs-EL subscales, Hispanic prekindergartners had lower proficient proportions than African Americans and White children. Proportions of African American prekindergartners in the proficient range were lower than White children. Except for the rhyming subtest, however, the differences were slight. Across all racial/ethnic groups, most students were at Moderate or Strong Progress levels at the end of the school year.

Table 17
IGDIs-EL Subtest Percentages by Benchmark and Ethnicity
in 2017-18 School Year

Ethnicity	Testing Period	Children	Strong Progress	Moderate Progress	At Risk Progress	Proficient Progress*
Picture Naming						
African American	Fall	3,315	15%	55%	31%	70%
	Spring	3,299	56%	36%	8%	92%
Hispanic	Fall	1,081	5%	28%	67%	33%
	Spring	1,154	31%	42%	27%	73%
White	Fall	3,052	25%	56%	19%	81%
	Spring	3,119	68%	28%	5%	96%
Rhyming						
African American	Fall	2,677	10%	30%	60%	40%
	Spring	3,212	47%	26%	27%	73%
Hispanic	Fall	798	6%	24%	70%	30%
	Spring	1,106	32%	30%	38%	62%
White	Fall	2,591	25%	31%	43%	56%
	Spring	3,049	60%	21%	19%	81%
Sound Identification						
African American	Fall	3,072	12%	32%	56%	44%
	Spring	3,275	48%	30%	22%	78%
Hispanic	Fall	982	9%	27%	65%	36%
	Spring	1,148	46%	30%	24%	76%
White	Fall	2,806	17%	33%	50%	50%
	Spring	3,097	53%	30%	17%	83%
"Which One Doesn't Belong?"						
African American	Fall	2,760	17%	35%	47%	52%
	Spring	3,219	55%	33%	12%	88%
Hispanic	Fall	841	18%	26%	55%	44%
	Spring	1,098	51%	34%	15%	86%
White	Fall	2,681	32%	38%	30%	70%
	Spring	3,070	66%	25%	8%	91%
Alliteration*						
African American	Spring	3,261	66%	27%	6%	93%
Hispanic	Spring	1,138	56%	37%	8%	93%
White	Spring	3,094	74%	21%	4%	95%

*Notes: Test developer recommends teachers do not administer Alliteration in the fall to four-year-old students; Proficient Progress is the sum of Strong and Moderate Progress.

Table 18 shows the percentages of the three categories of progress on IDGIs-EL for children in Non-CERDEP and CERDEP classrooms. Again, proportions of children in the proficient categories increased on the four subtests given at the end of the year. On Picture Naming Non-CERDEP and CERDEP prekindergartners had proficient proportions of 90 percent and 91 percent, respectively. With respect to Rhyming, Non-CERDEP and CERDEP children had proficient percentages of 75 percent and 72 percent, respectively. The Sound Identification subtest proficient proportions for Non-CERDEP and CERDEP children were 82 percent and 76 percent, respectively. For the “Which One Doesn’t Belong?” subtest, proportions for Non-CERDEP and CERDEP children were 89 percent and 90 percent, respectively. For the spring Alliteration subtest, the proportions of Non-CERDEP and CERDEP children were 94 percent and 94 percent, respectively. Only the Sound Identification subtest showed a difference above 5 percentage points between Non-CERDEP and CERDEP prekindergartners that were favorable for the Non-CERDEP children (6 percent higher). Except for Sound Identification, CERDEP and Non-CERDEP students had similar fall and spring assessment results.

Table 18
IGDIs-EL Subtest Percentages by Benchmark and CERDEP Status
in 2017-18 School Year

CERDEP Status	Testing Period	Children	Strong Progress	Moderate Progress	At Risk Progress	Proficient Progress*
Picture Naming						
Non-CERDEP	Fall	5,184	17%	50%	33%	67%
	Spring	5,252	57%	33%	10%	90%
CERDEP	Fall	2,815	18%	53%	29%	71%
	Spring	2,860	57%	34%	9%	91%
Rhyming						
Non-CERDEP	Fall	4,108	17%	28%	55%	45%
	Spring	5,079	51%	24%	24%	75%
CERDEP	Fall	2,405	15%	32%	53%	47%
	Spring	2,816	48%	24%	28%	72%
Sound Identification						
Non-CERDEP	Fall	4,748	15%	31%	55%	46%
	Spring	5,212	53%	29%	18%	82%
CERDEP	Fall	2,634	13%	34%	53%	47%
	Spring	2,849	44%	32%	24%	76%
“Which One Doesn’t Belong?”						
Non-CERDEP	Fall	4,252	23%	36%	42%	59%
	Spring	5,093	58%	31%	11%	89%
CERDEP	Fall	2,496	25%	35%	40%	60%
	Spring	2,820	62%	28%	10%	90%
Alliteration*						
Non-CERDEP	Spring	5,185	69%	25%	5%	94%
CERDEP	Spring	2,844	66%	28%	6%	94%

*Notes: Test developer recommends teachers do not administer Alliteration in the fall to four-year-old students; Proficient Progress is the sum of Strong and Moderate Progress.

Longitudinal Comparisons: IGDIs-EL

As the same version of the IGDIs-EL test was administered in South Carolina in successive years, prekindergartners' scores can be compared longitudinally. The purpose of the longitudinal comparisons is to examine trends in student performance. Strong Progress and Moderate Progress percentages are combined to create a Proficient Progress column for discussion.

Table 19 below provides scores on IGDIs-EL across three consecutive school years for the spring scores. IGDIs-EL scores have increased slightly from the 2016 to the 2018 administrations. Scores were largely above 75% for all subscales and time points. The Rhyming and Sound Identification subtests exhibited lower percentages than other tests; however, scores from these two tests still improved across the three-year testing period.

Table 19
IGDIs-EL Subtest Percentages by Benchmark and Time Points
for the 2015-2016, 2016-2017 and 2017-2018 Academic Years

Testing Period	Students	Strong Progress	Moderate Progress	At risk Progress	Proficient Progress
Picture Naming					
2016 Spring	8,093	50%	37%	13%	87%
2017 Spring	7,915	55%	35%	10%	90%
2018 Spring	8,112	57%	33%	10%	90%
Rhyming					
2016 Spring	8,025	46%	24%	30%	70%
2017 Spring	7,735	49%	24%	27%	73%
2018 Spring	7,895	50%	24%	25%	74%
Sound Identification					
2016 Spring	8,072	45%	31%	24%	76%
2017 Spring	7,783	48%	30%	22%	78%
2018 Spring	8,061	50%	30%	20%	80%
"Which One Doesn't Belong?"					
2016 Spring	8,009	54%	33%	14%	87%
2017 Spring	7,767	58%	30%	11%	88%
2018 Spring	7,913	59%	30%	11%	89%
Alliteration					
2016 Spring	6,413	68%	27%	6%	95%
2017 Spring	7,847	67%	27%	6%	94%
2018 Spring	8,029	68%	26%	6%	94%

*Note: Test developer recommends teachers do not administer Alliteration in the fall to four-year-old students; Proficient Progress is the sum of Strong and Moderate Progress.

Table 20 below provides scores over time on IGDIs-EL benchmarks by race/ethnicity of prekindergartners. IGDIs-EL scores showed increases from the 2016 to the 2018 administrations across all ethnicity groupings. Among the subscales, the largest increase was observed for Hispanic students for the Picture Naming subscale with scores increasing 9 percentage points from 2016 to 2018.

Table 20
IGDIs-EL Subtest Percentages by Benchmark and Ethnicity
in 2015-2016, 2016-2017 and 2017-2018 School Years

Ethnicity	Testing Period	Students	Strong Progress	Moderate Progress	At Risk Progress	Proficient Progress
Picture Naming						
African American	2016 Spring	3,413	52%	39%	10%	91%
	2017 Spring	3,348	55%	37%	8%	92%
	2018 Spring	3,299	56%	36%	8%	92%
Hispanic	2016 Spring	1,229	22%	42%	36%	64%
	2017 Spring	1,198	33%	41%	27%	74%
	2018 Spring	1,154	31%	42%	27%	73%
White	2016 Spring	2,848	61%	32%	7%	93%
	2017 Spring	2,848	66%	29%	5%	95%
	2018 Spring	3,119	68%	28%	5%	96%
Rhyming						
African American	2016 Spring	3,379	43%	26%	31%	69%
	2017 Spring	3,272	45%	26%	29%	71%
	2018 Spring	3,212	47%	26%	27%	73%
Hispanic	2016 Spring	1,218	26%	29%	45%	55%
	2017 Spring	1,166	31%	28%	41%	59%
	2018 Spring	1,106	32%	30%	38%	62%
White	2016 Spring	2,835	59%	19%	22%	78%
	2017 Spring	2,792	61%	20%	19%	81%
	2018 Spring	3,049	60%	21%	19%	81%
Sound Identification						
African American	2016 Spring	3,404	42%	32%	26%	74%
	2017 Spring	3,329	43%	32%	25%	75%
	2018 Spring	3,275	48%	31%	22%	79%
Hispanic	2016 Spring	1,227	41%	30%	28%	71%
	2017 Spring	1,202	47%	29%	25%	76%
	2018 Spring	1,148	46%	30%	24%	76%
White	2016 Spring	2,841	51%	29%	20%	80%
	2017 Spring	2,832	53%	29%	18%	82%
	2018 Spring	3,097	53%	30%	17%	83%
“Which One Doesn’t Belong?”						
African American	2016 Spring	3,375	52%	34%	14%	86%
	2017 Spring	3,296	56%	31%	13%	87%
	2018 Spring	3,219	55%	33%	12%	88%
Hispanic	2016 Spring	1,208	43%	34%	22%	77%
	2017 Spring	1,163	50%	33%	17%	83%
	2018 Spring	1,098	51%	34%	15%	85%

Ethnicity	Testing Period	Students	Strong Progress	Moderate Progress	At Risk Progress	Proficient Progress
White	2016 Spring	2,831	60%	30%	10%	90%
	2017 Spring	2,801	65%	28%	7%	93%
	2018 Spring	3,070	66%	25%	8%	91%
Alliteration						
African American	2016 Spring	2,918	66%	29%	6%	95%
	2017 Spring	3,324	66%	27%	7%	93%
	2018 Spring	3,261	66%	27%	6%	93%
Hispanic	2016 Spring	771	54%	38%	8%	92%
	2017 Spring	1,192	55%	37%	8%	92%
	2018 Spring	1,138	56%	37%	8%	93%
White	2016 Spring	2,272	75%	20%	5%	95%
	2017 Spring	2,871	73%	22%	4%	95%
	2018 Spring	3,094	74%	21%	4%	95%

*Note: Test developer recommends teachers do not administer Alliteration in the fall to four-year-old students; Proficient Progress is the sum of Strong and Moderate Progress

Table 21 below provides scores over time on IGDIs-EL benchmarks by CERDEP status. Again, IGDIs-EL scores showed increases from the 2016 to the 2018 administrations. Generally, there were increases for both groups on most subscales over the three-year period.

Table 21
IGDIs-EL Subtest Percentages by Benchmark and CERDEP
in 2015-2016, 2016-2017 and 2017-2018 School Years

CERDEP Status	Testing Period	Students	Strong Progress	Moderate Progress	At Risk Progress	Proficient Progress
Picture Naming						
Non-CERDEP	2016 Spring	5,325	49%	37%	14%	86%
	2017 Spring	5,034	55%	34%	11%	89%
	2018 Spring	5,252	57%	33%	10%	90%
CERDEP	2016 Spring	2,753	52%	36%	12%	88%
	2017 Spring	2,881	55%	36%	9%	91%
	2018 Spring	2,860	57%	34%	9%	91%
Rhyming						
Non-CERDEP	2016 Spring	5,277	47%	23%	30%	70%
	2017 Spring	4,886	50%	24%	26%	74%
	2018 Spring	5,079	51%	25%	24%	76%
CERDEP	2016 Spring	2,743	45%	25%	30%	70%
	2017 Spring	2,849	47%	24%	29%	71%
	2018 Spring	2,816	48%	24%	28%	72%
Sound Identification						
Non-CERDEP	2016 Spring	5,314	47%	30%	23%	77%
	2017 Spring	5,011	52%	30%	18%	82%
	2018 Spring	5,212	53%	29%	18%	82%

CERDEP Status	Testing Period	Students	Strong Progress	Moderate Progress	At Risk Progress	Proficient Progress
CERDEP	2016 Spring	2,753	42%	32%	26%	74%
	2017 Spring	2,872	40%	30%	30%	70%
	2018 Spring	2,849	44%	32%	24%	76%
“Which One Doesn’t Belong?”						
Non-CERDEP	2016 Spring	5,266	53%	32%	15%	85%
	2017 Spring	4,918	59%	30%	11%	89%
	2018 Spring	5,093	58%	32%	11%	90%
CERDEP	2016 Spring	2,738	54%	34%	11%	88%
	2017 Spring	2,849	57%	32%	11%	89%
	2018 Spring	2,820	62%	28%	10%	90%
Alliteration						
Non-CERDEP	2016 Spring	3,663	68%	26%	6%	94%
	2017 Spring	4,988	70%	25%	5%	95%
	2018 Spring	5,185	69%	25%	5%	94%
CERDEP	2016 Spring	2,745	68%	27%	5%	95%
	2017 Spring	2,859	63%	30%	7%	93%
	2018 Spring	2,844	66%	28%	6%	94%

*Notes: Test developer recommends teachers do not administer Alliteration in the fall to four-year-old students; Proficient Progress is the sum of Strong and Moderate Progress.

IGDIs-EL Findings

Finding 8: As noted in Table 16, teachers administered IGDIs EL to approximately 8,000 prekindergartners in fall 2017 and spring 2018.

Finding 9: Five areas were assessed: 1. Picture Naming, 2. Rhyming, 3. Sound Identification, 4. “Which One Doesn’t Belong?” and 5. Alliteration.

Finding 10: When using the combined Strong Progress and Moderate Progress categories, the overwhelming proportion of prekindergartners generally met publisher’s spring expected scores on subtests: 1. Picture Naming (90 percent), 2. Rhyming (74 percent), 3. Sound Identification (80 percent), 4. “Which One Doesn’t Belong?” (89 percent), and 5. Alliteration (94 percent).

Finding 11: On the spring 2018 assessment, African American and White prekindergartners had similar proportions on most IGDIs-EL subtests. The Rhyming subtest was the exception, with African American children scoring 8 percent lower than White children.

Finding 12: On the spring 2018 assessments, Hispanic children had lower proportions than African American and White prekindergartners on two subtests. With the Picture Naming subtest proportion Hispanic were 19 percent lower than African American and 23 percent below White prekindergartners. For the Rhyming subtests Hispanic percentages were lower by 11 percent compared to African American and with 19 percent with White children.

Finding 13: Except for Sound Identification, CERDEP and Non-CERDEP students had similar fall and spring assessment results. The Spring testing of Sound Identification exhibited the largest difference in which Non-CERDEP exceeded CERDEP children by a proportion of 6 percent.

Finding 14: Table 19 showed improvements over time for four of the five IGDIs-EL subtests: Picture Naming, Rhyming, Picture Identification, and “Which One Doesn’t Belong?”

Finding 15: Longitudinal results shown in Table 20 a slight increase from spring 2016 to spring 2018 by race. An exception is Hispanic students, who increased by 9 percent on Picture Naming and by 7 percent on Rhyming over the three-year period.

Finding 16: CERDEP and Non-CERDEP students showed slight improvement over the 2016 to 2018 period. Scores were similar between the two groups.

Phonological Awareness Literacy Screening Prekindergarten (PALS-PreK)

PALS-PreK is an individualized and standardized assessment for 4-year-olds to better understand their language and literacy skills in eight areas. The PALS-PreK eight subtests include:

- Name Writing,
- Alphabet-Upper Case,
- Alphabet-Lower Case,
- Letter Sounds,
- Beginning Sound Awareness,
- Print and Word Awareness,
- Rhyme Awareness, and
- Nursery Rhyme Awareness.

Each of the subtests has separate assessment protocols for three testing occasions (i.e., fall, winter, and spring). At the end of the year, assessment developers provide developmental ranges for each of the eight subtests.

In South Carolina, teachers administer PALS-PreK directly to children in the fall (beginning of year) and spring (end of year). Each PALS-PreK subtest has three categories of performance: 1. Exceed Expected Range, 2. Within Expected Range, and 3. Below Expected Range. Table 22 shows the percentage of children's progress on PALS-PreK by these three performance categories. The proportion of Exceed Expected Range and Within Expected Range indicates children's proficiency in literacy and language skills. Similar to IGDIs-EL, we have combined them for discussion into one category, Proficient Expected Range.

All eight of the subtests showed improvement in the proportions of children for the combined Exceed Expected Range and Within Expected Range categories. Specifically, during the spring during the end of year assessment, the Proficient Expected Range combined categories yielded: 1. Name Writing (92 percent), 2. Alphabet-Upper Case (86 percent), 3. Alphabet-Lower Case (88 percent), 4. Letter Sounds (88 percent), 5. Beginning Sound Awareness (87 percent), 6. Print and Word Awareness (83 percent), 7. Rhyme Awareness (81 percent), and 8. Nursery Rhyme Awareness (87 percent). Again, the bolded percentages represent the largest proportions in fall and spring assessments across the three categories reported by the test developer.

Table 22
PALS-PreK Percentages by Expected Ranges
in 2017-18 School Year

Testing Period	Children	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range*
Name Writing					
Fall	10,897	0%	27%	73%	27%
Spring	10,512	0%	92%	8%	92%
Alphabet-Upper Case					
Fall	10,919	13%	12%	75%	15%
Spring	10,530	70%	16%	14%	86%
Alphabet-Lower Case					
Fall	10,381	13%	12%	76%	25%
Spring	10,470	74%	14%	13%	88%
Letter Sounds					
Fall	10,267	10%	7%	83%	17%
Spring	10,448	79%	9%	12%	88%
Beginning Sound Awareness					
Fall	10,878	13%	17%	70%	30%
Spring	10,506	70%	17%	13%	87%
Print and Word Awareness					
Fall	10,871	1%	18%	81%	19%
Spring	10,485	29%	54%	17%	83%
Rhyme Awareness					
Fall	10,803	9%	18%	73%	27%
Spring	10,494	56%	25%	19%	81%
Nursery Rhyme Awareness					
Fall	10,783	0%	28%	72%	28%
Spring	10,446	0%	87%	13%	87%

*Note: Proficient Expected Range is the sum of Exceed and Within Expected Range.

Table 23 delineates the three categories of progress on PALS-PreK for African American, Hispanic, and White children. Again, in the proficient categories, improvements in the children's progress are evident from the fall to spring assessment. Specifically, by spring, most African American (91 percent), Hispanic (94 percent), and White (93 percent) children were in the proficient range on Name Writing. In addition, for the Alphabet-Upper Case subtest proportions were African American (87 percent), Hispanic (82 percent), and White (87 percent). For prekindergartners the Alphabet-Lower Case subtest percentages were African American (87 percent), Hispanic (84 percent), and White (88 percent) children. On Letter Sounds, African American (87 percent), Hispanic (86 percent), and White (89 percent) children had proficient proportions. The Beginning Sound Awareness subtest found proficient proportions, for African American (85 percent), Hispanic (82 percent), and White (89 percent) prekindergartners.

Proportions for Print and Word Awareness were African American (80 percent), Hispanic (75 percent), and White (87 percent). The Rhyme Awareness subtest found most African American (77 percent), Hispanic (73 percent), and White (86 percent) prekindergartners were also in the proficient category. Finally, for the Nursery Rhyme Awareness subtest proportions were African American (88 percent), Hispanic (75 percent), and White (90 percent). Again, the bolded percentages represent the largest proportions in fall and spring assessments for the three categories reported by the test developer.

Table 23
PALS-PreK Percentages by Expected Ranges and Ethnicity
in 2017-18 School Year

Ethnicity	Testing Period	Children	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range *
Name Writing						
African American	Fall	3,908	0%	26%	74%	26%
	Spring	3,812	0%	91%	9%	91%
Hispanic	Fall	1,258	0%	21%	79%	21%
	Spring	1,222	0%	94%	6%	94%
White	Fall	4,888	0%	29%	71%	29%
	Spring	4,683	0%	93%	7%	93%
Alphabet-Upper Case						
African American	Fall	3,919	15%	13%	72%	28%
	Spring	3,824	71%	16%	14%	87%
Hispanic	Fall	1,262	7%	8%	85%	15%
	Spring	1,220	64%	18%	19%	82%
White	Fall	4,895	12%	12%	76%	24%
	Spring	4,689	71%	16%	13%	87%
Alphabet-Lower Case						
African American	Fall	3,779	15%	13%	72%	28%
	Spring	3,807	74%	13%	13%	87%
Hispanic	Fall	1,223	6%	7%	87%	13%
	Spring	1,212	68%	16%	16%	84%
White	Fall	4,583	11%	12%	77%	23%
	Spring	4,657	74%	14%	12%	88%
Letter Sounds						
African American	Fall	3,717	11%	9%	80%	20%
	Spring	3,802	78%	9%	13%	87%
Hispanic	Fall	1,219	5%	4%	91%	9%
	Spring	1,207	75%	11%	14%	86%
White	Fall	4,540	10%	7%	84%	17%
	Spring	4,646	80%	9%	11%	89%
Beginning Sound Awareness						
African American	Fall	3,898	12%	17%	71%	29%
	Spring	3,820	66%	19%	15%	85%
Hispanic	Fall	1,257	8%	12%	79%	20%
	Spring	1,218	64%	18%	18%	82%
White	Fall	4,882	15%	19%	66%	34%
	Spring	4,672	74%	15%	11%	89%

Ethnicity	Testing Period	Children	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range *
Print and Word Awareness						
African American	Fall	3,894	1%	15%	84%	16%
	Spring	3,813	27%	53%	20%	80%
Hispanic	Fall	1,260	1%	11%	88%	12%
	Spring	1,213	23%	52%	24%	75%
White	Fall	4,876	2%	22%	77%	24%
	Spring	4,666	32%	55%	13%	87%
Rhyme Awareness						
African American	Fall	3,868	6%	19%	75%	25%
	Spring	3,809	51%	26%	22%	77%
Hispanic	Fall	1,249	4%	16%	81%	20%
	Spring	1,219	43%	30%	27%	73%
White	Fall	4,851	13%	18%	69%	31%
	Spring	4,673	64%	22%	15%	86%
Nursery Rhyme Awareness						
African American	Fall	3,855	0%	26%	74%	26%
	Spring	3,801	0%	88%	12%	88%
Hispanic	Fall	1,253	0%	14%	86%	14%
	Spring	1,216	0%	75%	25%	75%
White	Fall	4,842	0%	33%	67%	33%
	Spring	4,639	0%	90%	10%	90%

*Note: Proficient Expected Range is the sum of Exceed and Within Expected Range.

Table 24 shows the percentages of three categories of progress on PALS-PreK for children in Non-CERDEP and CERDEP classrooms. Again, in the proficient categories, increased proportions of children can be seen on the eight subtests at the end of year. For the Name Writing subtest, Non-CERDEP and CERDEP prekindergartners had proportions of 92 percent and 92 percent in the proficient range, respectively. With respect to the Alphabet-Upper Case subtest, Non-CERDEP and CERDEP children had proficient percentages of 87 percent and 86 percent, respectively. On Alphabet-Lower Case, proficient proportions for Non-CERDEP and CERDEP children were 88 percent and 87 percent, respectively. For the Letter Sounds subtest, proficient proportions for Non-CERDEP and CERDEP children were 89 percent and 87 percent, respectively. For the Beginning Sounds Awareness subtest, Non-CERDEP and CERDEP children grouped as proficient 89 percent and 86 percent, respectively. The Print and Word Awareness subtest, the proportions of Non-CERDEP and CERDEP children in the proficient range were 85 percent and 80 percent, respectively. The Rhyme Awareness subtest proficient proportions for Non-CERDEP and CERDEP children were 83 percent and 80 percent, respectively. Finally, for the Nursery Rhyme Awareness subtest, the proportions of Non-CERDEP and CERDEP children scoring in the proficient range were 89 percent and 86 percent, respectively. Across all PALS-PreK subtests, scores were similar for CERDEP and Non-CERDEP preschoolers.

Table 24
PALS-PreK Percentages by Expected Ranges and CERDEP Status
in 2017-18 School Year

CERDEP Status	Testing Period	Children	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range*
Name Writing						
Non-CERDEP	Fall	4,430	0%	24%	76%	24%
	Spring	4,176	0%	92%	8%	92%
CERDEP	Fall	6,467	0%	29%	71%	29%
	Spring	6,336	0%	92%	8%	92%
Alphabet-Upper Case						
Non-CERDEP	Fall	4,428	12%	12%	76%	24%
	Spring	4,177	73%	14%	13%	87%
CERDEP	Fall	6,491	13%	13%	74%	26%
	Spring	6,353	69%	17%	14%	86%
Alphabet-Lower Case						
Non-CERDEP	Fall	4,274	11%	11%	78%	22%
	Spring	4,169	75%	13%	12%	88%
CERDEP	Fall	6,107	14%	12%	74%	26%
	Spring	6,301	73%	14%	13%	87%
Letter Sounds						
Non-CERDEP	Fall	4,259	8%	6%	87%	14%
	Spring	4,165	81%	8%	11%	89%
CERDEP	Fall	6,008	11%	8%	81%	19%
	Spring	6,283	77%	10%	13%	87%
Beginning Sound Awareness						
Non-CERDEP	Fall	4,415	12%	17%	72%	29%
	Spring	4,165	72%	17%	12%	89%
CERDEP	Fall	6,463	14%	18%	68%	32%
	Spring	6,341	69%	17%	14%	86%
Print and Word Awareness						
Non-CERDEP	Fall	4,406	2%	18%	80%	20%
	Spring	4,148	32%	53%	14%	85%
CERDEP	Fall	6,465	1%	17%	81%	18%
	Spring	6,337	26%	54%	19%	80%
Rhyme Awareness						
Non-CERDEP	Fall	4,387	9%	17%	74%	26%
	Spring	4,161	61%	22%	17%	83%
CERDEP	Fall	6,416	9%	19%	72%	28%
	Spring	6,333	54%	26%	20%	80%
Nursery Rhyme Awareness						
Non-CERDEP	Fall	4,372	0%	28%	72%	28%
	Spring	4,139	0%	89%	11%	89%
CERDEP	Fall	6,411	0%	28%	72%	28%
	Spring	6,307	0%	86%	14%	86%

*Note: Proficient Expected Range is the sum of Exceed and Within Expected Range.

PALS-PreK Longitudinal Results

The same version of the PALS-PreK test was administered in South Carolina in successive years, allowing prekindergartners' scores to be compared across time. The purpose of the longitudinal comparisons is to examine trends in student performance. Exceed and Within Expected Range percentages are combined to create a Proficient Expected Range column for discussion.

Table 25 below provides scores for the PALS-PreK across three consecutive school years. Examining spring scores showed that the percentages of children in the Proficient Expected Range was largely stable across the period from 2016 to 2018.

Table 25
PALS-PreK Percentages by Expected Ranges
in 2015-2016, 2016-2017 and 2017-2018 School Years

Testing Period	Students	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range
Name Writing					
2016 Spring	10,236	0%	92%	8%	92%
2017 Spring	10,603	0%	92%	8%	92%
2018 Spring	10,512	0%	92%	8%	92%
Alphabet-Upper Case					
2016 Spring	10,270	72%	16%	13%	88%
2017 Spring	10,608	70%	17%	13%	87%
2018 Spring	10,530	69%	17%	14%	86%
Alphabet-Lower Case					
2016 Spring	8,821	75%	14%	11%	89%
2017 Spring	10,536	73%	15%	12%	88%
2018 Spring	10,470	73%	14%	13%	87%
Letter Sounds					
2016 Spring	10,123	79%	9%	12%	88%
2017 Spring	10,504	79%	9%	12%	88%
2018 Spring	10,448	77%	10%	13%	87%
Beginning Sound Awareness					
2016 Spring	10,247	71%	16%	13%	87%
2017 Spring	10,609	70%	17%	13%	87%
2018 Spring	10,506	69%	17%	14%	86%
Print and Word Awareness					
2016 Spring	10,259	33%	51%	16%	84%
2017 Spring	10,617	30%	53%	17%	83%
2018 Spring	10,485	26%	54%	19%	80%
Rhyme Awareness					
2016 Spring	10,227	58%	24%	19%	82%
2017 Spring	10,611	57%	24%	19%	81%
2018 Spring	10,494	54%	26%	20%	80%

Testing Period	Students	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range
Nursery Rhyme Awareness					
2016 Spring	10,220	0%	86%	14%	86%
2017 Spring	10,594	0%	86%	14%	86%
2018 Spring	10,446	0%	86%	14%	86%

Note: Proficient is the sum of Exceed and Meet percentages.

Table 26 reports longitudinal scores for PALS-PreK across ethnicity groups for three consecutive school years between 2016 and 2018. Proficiency scores were similar across ethnicity groups for the Name Writing subscale. For the remaining subscales, Hispanic students showed lower percentages of children in the Proficient Expected Ranges than White or African American prekindergartners.

Table 26
PALS-PreK Percentages by Expected Ranges and Ethnicity
in 2015-2016, 2016-2017 and 2017-2018 School Years

Ethnicity	Testing Period	Students	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range
Name Writing						
African American	2016 Spring	3,837	0%	91%	9%	91%
	2017 Spring	4,033	0%	90%	10%	90%
	2018 Spring	3,812	0%	91%	10%	91%
Hispanic	2016 Spring	1,248	0%	94%	6%	94%
	2017 Spring	1,300	0%	93%	7%	93%
	2018 Spring	1,222	0%	94%	6%	94%
White	2016 Spring	4,580	0%	93%	7%	93%
	2017 Spring	4,539	0%	93%	7%	93%
	2018 Spring	4,683	0%	93%	7%	93%
Alphabet-Upper Case						
African American	2016 Spring	3,777	73%	15%	12%	88%
	2017 Spring	4,038	71%	16%	13%	87%
	2018 Spring	3,824	71%	16%	14%	87%
Hispanic	2016 Spring	1,250	65%	18%	17%	83%
	2017 Spring	1,298	64%	19%	17%	83%
	2018 Spring	1,220	64%	18%	19%	82%
White	2016 Spring	4,586	71%	16%	12%	87%
	2017 Spring	4,541	69%	18%	13%	87%
	2018 Spring	4,689	71%	13%	16%	84%
Alphabet-Lower Case						
African American	2016 Spring	3,732	78%	12%	10%	90%
	2017 Spring	4,008	75%	14%	11%	89%
	2018 Spring	3,807	74%	13%	13%	87%
Hispanic	2016 Spring	1,231	69%	16%	15%	85%
	2017 Spring	1,290	69%	16%	15%	85%
	2018 Spring	1,212	68%	16%	16%	84%
White	2016 Spring	4,525	75%	14%	11%	89%
	2017 Spring	4,512	73%	15%	12%	88%
	2018 Spring	4,657	74%	14%	12%	88%

Ethnicity	Testing Period	Students	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range
Letter Sounds						
African American	2016 Spring	3,723	79%	11%	10%	90%
	2017 Spring	3,995	79%	8%	13%	87%
	2018 Spring	3,802	78%	9%	13%	87%
Hispanic	2016 Spring	1,232	75%	9%	16%	84%
	2017 Spring	1,287	76%	9%	15%	85%
	2018 Spring	1,207	75%	11%	14%	86%
White	2016 Spring	4,516	81%	8%	11%	89%
	2017 Spring	4,500	79%	9%	12%	88%
	2018 Spring	4,646	80%	9%	11%	89%
Beginning Sound Awareness						
African American	2016 Spring	3,763	68%	18%	14%	86%
	2017 Spring	4,043	66%	19%	15%	85%
	2018 Spring	3,820	66%	19%	15%	85%
Hispanic	2016 Spring	1,252	65%	19%	17%	84%
	2017 Spring	1,294	65%	18%	17%	83%
	2018 Spring	1,218	64%	18%	18%	82%
White	2016 Spring	4,575	75%	14%	11%	89%
	2017 Spring	4,542	74%	16%	10%	90%
	2018 Spring	4,672	74%	15%	11%	89%
Print and Word Awareness						
African American	2016 Spring	3,776	32%	51%	23%	83%
	2017 Spring	4,044	28%	52%	20%	80%
	2018 Spring	3,813	27%	53%	20%	80%
Hispanic	2016 Spring	1,251	26%	51%	23%	77%
	2017 Spring	1,300	23%	54%	23%	77%
	2018 Spring	1,213	23%	52%	24%	75%
White	2016 Spring	4,575	36%	52%	12%	88%
	2017 Spring	4,543	32%	55%	13%	87%
	2018 Spring	4,666	32%	55%	13%	87%
Rhyme Awareness						
African American	2016 Spring	3,755	55%	26%	20%	81%
	2017 Spring	4,039	53%	25%	22%	78%
	2018 Spring	3,809	51%	26%	22%	77%
Hispanic	2016 Spring	1,251	40%	31%	28%	71%
	2017 Spring	1,298	40%	35%	25%	75%
	2018 Spring	1,219	43%	30%	27%	73%
White	2016 Spring	4,566	65%	20%	15%	85%
	2017 Spring	4,545	66%	19%	15%	85%
	2018 Spring	4,673	64%	22%	15%	86%
Nursery Rhyme Awareness						
African American	2016 Spring	3,753	0%	87%	13%	87%
	2017 Spring	4,035	0%	86%	14%	86%
	2018 Spring	3,801	0%	88%	12%	88%
Hispanic	2016 Spring	1,248	0%	71%	29%	71%
	2017 Spring	1,296	0%	72%	28%	72%
	2018 Spring	1,216	0%	75%	25%	75%

Ethnicity	Testing Period	Students	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range
White	2016 Spring	4,641	0%	88%	12%	88%
	2017 Spring	4,534	0%	89%	11%	89%
	2018 Spring	4,639	0%	90%	10%	90%

Note: Proficient is the sum of Exceed and Meet percentages.

Table 27 reports longitudinal scores for PALS-PreK across time based on CERDEP status. For a given subscale, PALS-PreK spring scores were relatively stable across time, regardless of CERDEP attendance.

Table 27
PALS-PreK Percentages by Expected Ranges and CERDEP Status
in 2015-2016, 2016-2017 and 2017-2018 School Years

CERDEP Status	Testing Period	Students	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range
Name Writing						
Non-CERDEP	2016 Spring	4,230	0%	93%	7%	93%
	2017 Spring	4,222	0%	92%	8%	92%
	2018 Spring	4,176	0%	92%	8%	92%
CERDEP	2016 Spring	6,006	0%	92%	8%	92%
	2017 Spring	6,381	0%	91%	9%	91%
	2018 Spring	6,336	0%	92%	8%	92%
Alphabet-Upper Case						
Non-CERDEP	2016 Spring	4,236	73%	15%	18%	88%
	2017 Spring	4,221	72%	15%	13%	87%
	2018 Spring	4,177	73%	14%	13%	87%
CERDEP	2016 Spring	6,034	70%	16%	13%	87%
	2017 Spring	6,387	69%	18%	14%	87%
	2018 Spring	6,353	69%	17%	14%	86%
Alphabet-Lower Case						
Non-CERDEP	2016 Spring	4,185	77%	12%	11%	89%
	2017 Spring	4,192	75%	13%	12%	88%
	2018 Spring	4,169	75%	13%	12%	88%
CERDEP	2016 Spring	5,964	74%	14%	12%	88%
	2017 Spring	6,344	73%	15%	12%	88%
	2018 Spring	6,301	73%	14%	13%	87%
Letter Sounds						
Non-CERDEP	2016 Spring	4,169	81%	8%	11%	89%
	2017 Spring	4,176	81%	8%	11%	89%
	2018 Spring	4,165	81%	8%	11%	89%
CERDEP	2016 Spring	5,954	78%	10%	12%	88%
	2017 Spring	6,328	78%	9%	13%	87%
	2018 Spring	6,283	77%	10%	13%	87%
Beginning Sound Awareness						
Non-CERDEP	2016 Spring	4,229	72%	16%	12%	88%
	2017 Spring	4,206	72%	16%	12%	88%
	2018 Spring	4,165	72%	17%	12%	89%

CERDEP Status	Testing Period	Students	Exceed Expected Range	Within Expected Range	Below Expected Range	Proficient Expected Range
CERDEP	2016 Spring	6,018	70%	16%	13%	86%
	2017 Spring	6,403	69%	17%	14%	86%
	2018 Spring	6,341	69%	17%	14%	86%
Print and Word Awareness						
Non-CERDEP	2016 Spring	4,227	38%	49%	14%	87%
	2017 Spring	4,212	33%	52%	15%	85%
	2018 Spring	4,148	32%	53%	14%	85%
CERDEP	2016 Spring	6,032	30%	53%	17%	83%
	2017 Spring	6,405	28%	54%	18%	82%
	2018 Spring	6,337	26%	54%	19%	80%
Rhyme Awareness						
Non-CERDEP	2016 Spring	4,223	60%	23%	18%	83%
	2017 Spring	4,209	61%	22%	17%	83%
	2018 Spring	4,161	61%	22%	17%	83%
CERDEP	2016 Spring	6,004	56%	25%	19%	81%
	2017 Spring	6,402	55%	25%	20%	80%
	2018 Spring	6,333	54%	26%	20%	80%
Nursery Rhyme Awareness						
Non-CERDEP	2016 Spring	4,219	0%	84%	16%	84%
	2017 Spring	4,208	0%	86%	14%	86%
	2018 Spring	4,139	0%	89%	11%	89%
CERDEP	2016 Spring	6,001	0%	87%	13%	87%
	2017 Spring	6,386	0%	86%	14%	86%
	2018 Spring	6,307	0%	86%	14%	86%

Note: Proficient is the sum of Exceed and Meet percentages.

PALS-PreK Findings

Finding 17: As noted in Table 22, teachers administered PALS-PreK to nearly 11,000 prekindergartners in fall 2017 and about 10,500 prekindergartners in spring 2018.

Finding 18: When using the combined Exceed Expected Range and Within Expected Range categories, the overwhelming proportion of prekindergartners generally met publishers' spring expected scores on subtests: 1. Name Writing (92 percent), 2. Alphabet-Upper Case (86 percent), 3. Alphabet-Lower Case (88 percent), 4. Letter Sounds (88 percent), 5. Beginning Sound Awareness (87 percent), 6. Print and Word Awareness (83 percent), 7. Rhyme Awareness (81 percent), and 8. Nursery Rhyme Awareness (87 percent).

Finding 19: For the PALS-PreK by ethnicity African American and White preschoolers had similar proportions of proficiency, excepting Rhyme Awareness, with Whites scoring 9 percent higher.

Finding 20: On the spring 2018 assessments, Hispanic children had lower proficient proportions than African American and White prekindergartners all but one subtest: Name Writing. The proportion of Hispanic children was most discrepant from other groups on the Nursery Rhyme Awareness subtest (13 percent lower than African Americans and 15 percent lower than Whites).

Finding 21: Prekindergartners in CERDEP and Non-CERDEP school districts had very similar proportions in spring 2018, with proficiency rates \geq 80 percent on all subscales.

Finding 22: Longitudinal PALS-PreK scores were stable across the 2016 to 2018 spring testing for all prekindergarten students.

Finding 23: Scores of PALS-PreK subtests by ethnicity and CERDEP status were stable, with students in the proficient range varying little across time.

Teaching Strategies GOLD Birth Through 3rd Grade (B3-GOLD)

The B3-GOLD is a new version of the previously used assessment, Teaching Strategies GOLD. The B3-GOLD is an individualized, standardized assessment designed to measure children's developmental skills from birth through third grade. The revised version of the assessment provides information about children's skills throughout the entire early childhood period. The B3-GOLD went through extensive review, editing, pilot testing, field testing, and revisions based on preliminary results and feedback from experts to arrive at the revised version. Unlike the IGDIs-EL and PALS-PreK, teachers make judgments about children's individual skill levels by reviewing children's artifacts placing children in a "developmental band" that corresponds to what a child can do concurrent with their age. The B3-GOLD is meant to be used as a formative assessment measure to shape and guide children's development.

Even though the test has a similar name and measures similar domains as in the past, B3-GOLD scores are not comparable with those of the previous TS GOLD. The B3-GOLD measures children along six domains and includes different scores (norm referenced, criterion referenced, readiness). As recommended by the test publishers, the present evaluation reports Widely Held Expectations scores, termed B3-GOLD Benchmark in the tables. The B3-GOLD Benchmarks are criterion referenced cut points founded in child development theory and research that indicate where demonstration of behavioral skills is expected for each age. These cut points were set by panels in a standard setting process. Subscale scores are converted to categories to denote performance: below, meets, or exceeds. The B3-GOLD Benchmark scores also align well with the purpose of the test—that is, to provide formative feedback regarding children's development.

In South Carolina, the domains of Language and Literacy were assessed and reported for prekindergarten children. All children are tested at the beginning and the end of the academic school year. This report provides information about children's performance at the beginning and the end of the 2017-18 school year.

Table 28 provides descriptions of the objectives that comprise these two domains. It should be noted that the Language Objectives and Literacy Objectives are not comparable domains. Specifically, Language Objectives may be more difficult for teachers to judge given they are based on language skills related to general language development (e.g., understanding complex language, expressing thoughts and needs). Literacy Objectives may be more readily judged because they are based on specific skills that are often taught during preschool (e.g., alphabet, use of books).

Table 28
B3-GOLD Language and Literacy Domains and Objectives

Language (3 Objectives)	Listens to and understands increasingly complex language Uses language to express thoughts and needs Uses appropriate conversational and other communication skills
Literacy (5 Objectives)	Demonstrates phonological awareness Demonstrates knowledge of alphabet Demonstrates knowledge of print and its uses Comprehends and responds to books and other texts Demonstrates writing skills

Table 29 shows the percentage of children in the B3-GOLD categories stated by the publisher. As with previous assessments, the Exceed and Meet categories were combined to form a Proficient category for discussion. Specifically, during the spring (i.e. end-of-year) assessment, the proficient categories held substantial majorities of children: Language Domain 87 percent, and Literacy Domain 94 percent. The bolded proportions show the largest percentages in fall and spring assessments across the three categories recommended by the test developer.

Table 29
B3-GOLD Percentages in Expected Ranges in 2017-18 School Year

Testing Period	Children	Exceed	Meet	Below	Proficient*
Language					
Fall	6,871	1%	31%	69%	32%
Spring	6,684	18%	69%	13%	87%
Literacy					
Fall	6,876	0%	36%	64%	36%
Spring	6,682	25%	69%	6%	94%

Note: Proficient is the sum of Exceed and Meet percentages.

Table 30 delineates the three categories of progress on B3-GOLD for African American, Hispanic, and White children. Again, in the proficient categories, improvements in the children's progress from the fall to spring assessment are evident. For the Language domain, by spring, most African American (85 percent), Hispanic (83 percent), and White (89 percent) children were within the proficient categories. In the Literacy domain, by spring, the majority of African American (92 percent), Hispanic (95 percent), and White (95 percent) prekindergartners were in the proficient categories.

Table 30
B3-GOLD Percentages in Expected Ranges by Ethnicity in 2017-18 School Year

Ethnicity	Testing Period	Children	Exceed	Meet	Below	Proficient
Language						
African American	Fall	3,352	1%	33%	66%	34%
	Spring	3,269	18%	68%	15%	86%
Hispanic	Fall	791	0%	19%	81%	19%
	Spring	785	15%	69%	17%	84%
White	Fall	2,155	0%	32%	68%	32%
	Spring	2,058	18%	71%	11%	89%
Literacy						
African American	Fall	3,351	1%	39%	61%	40%
	Spring	3,267	25%	67%	8%	92%
Hispanic	Fall	791	0%	23%	77%	23%
	Spring	785	18%	77%	5%	95%
White	Fall	2,160	0%	35%	65%	35%
	Spring	2,058	27%	69%	5%	96%

Note: Proficient is the sum of Exceed and Meet percentages.

Table 31 delineates results from Non-CERDEP and CERDEP sites. Again, in the proficient categories (“Exceeds” and “Meets” combined), children’s progress on B3-GOLD from the fall to spring assessment may be seen in both the Language and Literacy domains. For the Language Domain, Non-CERDEP and CERDEP prekindergartners had spring proficient proportions of 90 percent and 85 percent, respectively. With respect to the Literacy Domain, Non-CERDEP and CERDEP children had spring proficient percentages of 96 percent and 93 percent, respectively.

Table 31
B3-GOLD Percentages in Expected Ranges by Non-CERDEP and CERDEP Status
in 2017-18 School Year

CERDEP Status	Testing Period	Children	Exceed	Meet	Below	Proficient
Language						
Non-CERDEP	Fall	1,948	0%	23%	76%	23%
	Spring	1,876	16%	74%	10%	90%
CERDEP	Fall	4,923	1%	34%	66%	35%
	Spring	4,808	18%	67%	15%	85%
Literacy						
Non-CERDEP	Fall	1,956	0%	31%	69%	31%
	Spring	1,876	25%	71%	4%	96%
CERDEP	Fall	4,920	0%	38%	62%	38%
	Spring	4,806	24%	69%	7%	93%

Note: Proficient is the sum of Exceed and Meet percentages.

Given that First Steps used B3-GOLD and some public school classrooms also used B3-GOLD, Table 32 delineates Non-public CERDEP and Public CERDEP scores. Again, in the proficient categories, improvements in the children’s progress from the fall to spring assessment are evident for the Language and Literacy Domains. For the Language Domain, Non-public CERDEP and Public CERDEP prekindergartners had proficient proportions of 85 percent and 85 percent, respectively. With respect to the Literacy Domain, Non-public CERDEP and Public CERDEP children had percentages of 90 percent and 94 percent, respectively.

Table 32
B3-GOLD Percentages in Expected Ranges by Public and Non-public CERDEP
Participants in 2017-18 School Year

CERDEP Status	Testing Period	Children	Exceed	Meet	Below	Proficient
Language						
Non-public CERDEP	Fall	2,202	1%	43%	56%	44%
	Spring	2,111	16%	69%	15%	85%
Public CERDEP	Fall	2,721	0%	27%	73%	27%
	Spring	2,697	20%	65%	14%	85%
Literacy						
Non-public CERDEP	Fall	2,198	1%	51%	49%	52%
	Spring	2,109	14%	76%	9%	90%
Public CERDEP	Fall	2,722	0%	28%	72%	28%
	Spring	2,697	32%	62%	6%	94%

Note: Proficient is the sum of Exceed and Meet percentages.

B3-GOLD Findings

Finding 24: Teachers administered B3-GOLD to approximately 6,900 4K students in fall 2017 and 6,700 4K students in spring 2018. Both non-public programs (First Steps) and some public school 4K students were assessed with B3-GOLD. The sum of “meet” and “exceed” categories equals the “proficient” category.

Finding 25: Most students scored proficient in the spring, 87 percent on Language and 94 percent on Literacy subtests.

Finding 26: On the spring 2018 assessment, all ethnic groupings scored comparably on the Language and Literacy subtests.

Finding 27: Students in Non-CERDEP and CERDEP programs also scored comparably on the Language and Literacy subtests.

Finding 28: CERDEP students in non-public (First Steps) and public classrooms scored comparably on the Language and Literacy subtests.

Finding 29: Because B3-GOLD is a new instrument, it is inappropriate to conduct longitudinal comparison with prior years’ TS GOLD results.

Summary of 4K Assessment Findings

Finding 30: Overall, most 4K students met assessment benchmarks in the spring of 2018. Table 33 below summarizes the following findings:

- IGDIs-EL:
 - 74 percent of students showed proficient progress on Rhyming, and 94 percent showed proficient progress on Alliteration.
 - The greatest ethnicity gaps were in Rhyming. Hispanic children scored lower than African American children by 11 percent and lower than White children by 19 percent. African American children scored 8 percent lower than White children in Rhyming.
 - CERDEP and Non-CERDEP students scored similarly in all areas.
 - From spring 2016 to spring 2018 there were slight increases in proficiency for four of the five IGDIs-EL subtests: Picture Naming, Rhyming, Picture Identification, and “Which One Doesn’t Belong?” By ethnicity, Hispanic students made the greatest gains, increasing by 9 percent on Picture Naming and by 7 percent on Rhyming over the three-year period. CERDEP and Non-CERDEP scores were similar between the two groups, showing slight increases.
- PALS-PreK:
 - High levels of students achieving proficiency, scoring 81 percent or higher on all tasks.
 - African American and White children scored similarly on most PALS-PreK; the one exception was Rhyme Awareness (9 percent lower). There were three PALS-PreK scales on which Hispanic students reported lower proficiency rates than other ethnicity groupings: Nursery Rhyme Awareness (12 percent lower than African Americans, 15 percent than Whites). Hispanic children scored lower than White children on two subtests: Print and Word Awareness (12 percent lower) and Rhyme Awareness (13 percent lower); scores were similar to African American children on these subscales.
 - CERDEP and Non-CERDEP students scored similarly.
 - Longitudinal PALS-PreK scores were stable across the 2016 to 2018 spring testing for all prekindergarten students. Scores of PALS-PreK subtests by ethnicity and CERDEP status were stable, with students in the proficient range varying little across time.

- B3- GOLD:
 - Overall, students scored proficient 87 percent on Language and 94 percent on Literacy.
 - All ethnic groups scored similarly on B3-GOLD subscales.
 - CERDEP and Non-CERDEP students received similar scores.

Table 33
Summary of Findings from Fall to Spring Administration of Prekindergarten Assessments, 2017-2018 Academic Year

Assessment	80% or more of Children Showed:	Less than 80% of Children Showed:	Greatest Gaps by Ethnicity in:	Gaps between CERDEP and Non-CERDEP:
Individual Growth and Development Indicators of Early Literacy (IGDI-EL)	Proficiency in: <ul style="list-style-type: none"> Picture Naming (90%) "Which One Doesn't Belong" (89%) Alliteration (94%) Sound Identification (80%) 	Proficiency in: <ul style="list-style-type: none"> Rhyming (74%) 	Rhyming: <ul style="list-style-type: none"> Hispanic children lower than African American by 11% and White Children by 19% Rhyming: <ul style="list-style-type: none"> African American children lower by 8% than White children 	Similar Progress
Phonological Awareness Literacy Screening Prekindergarten (PALS-PreK)	Proficiency in: <ul style="list-style-type: none"> Name Writing (92%) Alphabet-Upper Case (86%) Alphabet-Lower Case (88%) Letter Sounds (88%) Beginning Sound Awareness (87%) Print and Word Awareness (83%) Rhyme Awareness (81%) Nursery Rhyme Awareness (87%) 		None detected between African American and White Children Print and Word Awareness: <ul style="list-style-type: none"> Hispanic children were 12% lower than White children. Rhyme Awareness: <ul style="list-style-type: none"> Hispanic children were 13% lower than White Children Nursery Rhyme Awareness <ul style="list-style-type: none"> Hispanic children were 13% lower than African Americans and 15% lower than White Children 	Similar progress
Teaching Strategies GOLD Birth Through 3 rd Grade (B3-GOLD)	Proficiency in: <ul style="list-style-type: none"> Language (87%) Literacy (94%) 		None dedicated between ethnic groupings	Similar Progress

III. Preliminary CERDEP Program Results in 2018-19 (EOC)

Provisos 1.58 and 1A.30 of the 2018-19 General Appropriation Act govern the administration of the state-funded, full-day four-year-old kindergarten program (CERDEP) in school year 2018-19. The program's eligibility remains consistent; an at-risk four-year-old residing in a district with a poverty index of 70 percent or greater could attend a public school or non-public center participating in the program. The per pupil reimbursement rate for instructional costs increased to \$4,510 in 2018-19, an increase of \$88 per pupil from 2017-18. The South Carolina Department of Education (SCDE) continues to manage CERDEP in public schools while the South Carolina Office of First Steps to School Readiness (First Steps) administers the program in non-public classrooms, including non-public childcare centers and faith-based settings.

CERDEP Participation in Public Schools

In 2018-19, there are still 64 school districts eligible to participate in CERDEP; however, three districts (Horry County School District, Kershaw County School District and Union County School District) opted not to participate. Table 34 lists districts eligible to participate in CERDEP.

Table 34
Districts with Poverty Index of 70 percent or Greater

1	Abbeville	17	Clarendon 1	33	Greenwood 50	49	McCormick
2	Aiken	18	Clarendon 2	34	Greenwood 51	50	Newberry
3	Allendale	19	Clarendon 3	35	Greenwood 52	51	Oconee
4	Anderson 2	20	Colleton	36	Hampton 1	52	Orangeburg 3
5	Anderson 3	21	Darlington	37	Hampton 2	53	Orangeburg 4
6	Anderson 5	22	Dillon 3	38	Horry ²²	54	Orangeburg 5
7	Bamberg 1	23	Dillon 4	39	Jasper	55	Richland 1
8	Bamberg 2	24	Dorchester 4	40	Kershaw ²³	56	Saluda
9	Barnwell 19	25	Edgefield	41	Laurens 55	57	Spartanburg 3
10	Barnwell 29	26	Fairfield	42	Laurens 56	58	Spartanburg 4
11	Barnwell 45	27	Florence 1	43	Lee	59	Spartanburg 6
12	Berkeley	28	Florence 2	44	Lexington 2	60	Spartanburg 7
13	Calhoun	29	Florence 3	45	Lexington 3	61	Sumter
14	Cherokee	30	Florence 4	46	Lexington 4	62	Union ²⁴
15	Chester	31	Florence 5	47	Marion	63	Williamsburg
16	Chesterfield	32	Georgetown	48	Marlboro	64	York 1

²² While eligible, Horry has opted out of CERDEP participation.

²³ While eligible, Kershaw has opted out of CERDEP participation. However, Kershaw will participate in CERDEP beginning in mid-January 2019.

²⁴ While eligible, Union has opted out of CERDEP participation.

Table 35 shows a 2018-19 enrollment of 9,705 students based on the 45-Day Student Count. Berkeley was 9.2 percent of statewide CERDEP enrollment with 895 students. Sumter enrolled 518 students, representing 5.3 percent of statewide enrollment. Florence 1 enrolled 390; Richland 1 enrolled 442; and Anderson 5 enrolled 395 students, comprising 12.6 percent of statewide enrollment combined.

Table 35
Public CERDEP Enrollment by District, based on 2018-19 45-Day Student Count

District	Count	Percent	District	Count	Percent
1 Abbeville	98	1.01	32 Georgetown	205	2.11
2 Aiken	470	4.84	33 Greenwood 50	220	2.27
3 Allendale	63	0.65	34 Greenwood 51	31	0.32
4 Anderson 2	95	0.98	35 Greenwood 52	40	0.41
5 Anderson 3	113	1.16	36 Hampton 1	95	0.98
6 Anderson 5	395	4.07	37 Hampton 2	27	0.28
7 Bamberg 1	24	0.25	38 Horry ²⁵	17	0.18
8 Bamberg 2	31	0.32	39 Jasper	153	1.58
9 Barnwell 19	16	0.17	40 Laurens 55	104	1.07
10 Barnwell 29	20	0.21	41 Laurens 56	65	0.67
11 Barnwell 45	39	0.40	42 Lee	76	0.78
12 Berkeley	895	9.22	43 Lexington 2	266	2.74
13 Calhoun	96	0.99	44 Lexington 3	138	1.42
14 Cherokee	245	2.52	45 Lexington 4	211	2.17
15 Chester	181	1.87	46 McCormick	20	0.21
16 Chesterfield	138	1.42	47 Marion 10	131	1.35
17 Clarendon 1	39	0.40	48 Marlboro	155	1.60
18 Clarendon 2	92	0.95	49 Newberry	149	1.54
19 Clarendon 3	38	0.39	50 Oconee	355	3.66
20 Colleton	234	2.41	51 Orangeburg 3	120	1.24
21 Darlington	304	3.13	52 Orangeburg 4	98	1.01
22 Dillon 3	59	0.61	53 Orangeburg 5	191	1.97
23 Dillon 4	122	1.26	54 Richland 1	442	4.55
24 Dorchester 4	99	1.02	55 Saluda	78	0.80
25 Edgefield	117	1.21	56 Spartanburg 3	104	1.07
26 Fairfield	148	1.53	57 Spartanburg 4	108	1.11
27 Florence 1	390	4.02	58 Spartanburg 6	323	3.33
28 Florence 2	36	0.37	59 Spartanburg 7	192	1.98
29 Florence 3	121	1.25	60 Sumter	518	5.34
30 Florence 4	21	0.22	61 Williamsburg	129	1.33
31 Florence 5	30	0.31	62 York 1 (York)	175	1.80
TOTAL				9,705	

Source: SCDE response to EOC data request, December 19, 2018.

²⁵ Students in Horry are enrolled in a charter school.

Table 36 details SCDE CERDEP appropriations and projected expenditures for FY 2018-19. As submitted by SCDE, instructional costs are projected to be \$45.4 million, which would fund 10,060 students who remain continuously enrolled in public CERDEP classrooms during the 2018-19 school year. Based on the 45-Day Student Count, actual CERDEP enrollment is about five percent below the budgeted number of students to be served. The 45-Day Count of 9,705 may decrease further due to student attrition. Based on historical data, the attrition rate in public schools is approximately 8.4 percent during the school year, meaning 8.4 percent of students exit the program before the end of the school year. Student attrition is likely to result in actual carry forward to FY 2019-20 exceeding the projected \$7.2 million. The carry forward from FY 2017-18 to FY 2018-19 was over \$10.3 million. SCDE projects expending \$1.1 million on CERDEP expansion during FY 2018-19, which is the same level as in the prior school year. During the current school year, SCDE reports it plans to provide more professional development for math. However, an explanation or detail about the plan to enhance math professional development was not provided at the time of this report.

Regarding the carry forward, SCDE noted support for an increase in the per pupil reimbursement rate and implementation of the following actions:

- Approximately \$2.4 million for professional development in math:

*During 2018-2019, the Office of Early Learning and Literacy (OELL) provided regional cohorts in early learning math instruction. The two-part face to face training will focus participants on being intentional in nurturing and engaging each student in his/her development of mathematical thinking, reasoning, and problem solving within the foundation of number sense, algebraic thinking, data analysis, geometry, and measurement. Session one occurred during fall 2018 with a total of 84 participants in regional meetings. Session one focused on effectively implementation of the South Carolina Early Learning Standards Mathematical Thinking and Expression (SC-ELS MTE) and how development of mathematical thinking occurs through counting, subitizing, classification, and problem solving. Session two being provided during spring 2019 as the second part of the cohort. Session two will focus on building an awareness of how development occurs through sorting, classifying, and later patterning. Each session provides methods of scaffolding students' development of mathematical concepts through hands-on, purposeful play scenarios throughout the preschool day to build a strong mathematical foundation. Participants will [leave] with a goal and next steps in how to intentionally promote, encourage, support, and expose children to math in different everyday playful learning situations and activities for each child in their care.*²⁶

- Some CERDEP-eligible districts are expanding in mid-January, 2019.

²⁶ SCDE emailed a response to EOC's request for additional information, January 9, 2019.

- Kershaw will begin participating in CERDEP in mid-January, 2019. Kershaw is eligible to participate in CERDEP, but in prior years has opted not to participate in CERDEP.
- SCDE will enhance its professional development offerings.

Actual carry forward cost estimates for the above actions were not provided by SCDE at the time of this report.

Table 36
SCDE Summary of Actual Appropriations and Projected Expenditures for FY 2018-19

Appropriations	
Carry Forward from FY 17 to FY 18	\$10,357,141
FY 19 General Fund Appropriation	\$13,099,665
FY 19 EIA Appropriation	\$ 34,324,437
Total Revenues	\$ 57,781,243
Projected Expenditures	
Portion of EOC Evaluation (EIA)	\$ 195,000
Cost of Instruction (\$4,510 per child pro-rata)	\$45,368,095
Supplies for New Classrooms (\$10,000 per classroom)	\$ 130,000
Expenditures for Transportation	\$ 700,000
Professional Development - Math	\$ 2,418,359
Assessment	\$ 600,000
Other: Expansion	
Extended Year (includes net from FY 17-18 Extended Year)	\$ 113,741
Summer Program (includes net from FY 18 Summer)	\$ 906,770
Extended Day	\$ 86,625
Total Expansion to Expend in 2018-19	\$1,107,136
Total Projected Expenditures	\$50,518,590
Amount Remaining to Carry Forward to FY 19	\$7,262,653
Outputs	
Total Full-Time Equivalents*	10,060

*Note: A full-time equivalent served is determined by dividing the total number of funds expended for instructional services by \$4,510, the per child maximum reimbursable rate.

Source: SC Department of Education Response to EOC Data Request, November 2018

Based on 2017-18 full-time equivalents, or actual number of students funded, CERDEP enrollment in public schools was 9,789 during the 2017-18 school year, with an 8.4 percent attrition rate. With a 45-Day Student Count of 9,705, 2018-19 the number of full-time equivalent students funded in public CERDEP is likely to decrease from 9,787 students in 2017-18 to 8,890 students in 2018-19. The projected decrease in public CERDEP enrollment results in a \$5.2 million decrease in SCDE's projected budget expenditures.²⁷ Table 37 shows SCDE reports five new schools and 12 new classrooms were added to the public CERDEP program during 2018-19. It is unclear why the addition of new schools and classrooms is not increasing the actual number of students enrolled in the public CERDEP program.

Table 37
Estimated CERDEP Public School Growth in FY 2018-19

	FY 2018-19 (Estimated)
Number of New Schools	5
Number of Existing Schools	242
Total Number of Schools	247
Number of New Classrooms	12
Number of Existing Classrooms	589
Total Number of Classrooms	601
Students Enrolled at 45-Day Count	9,705

Source: SC Department of Education email response, December 3, 2018

²⁷ \$4,510 per pupil multiplied by projected 8,890 student enrollment equals \$40,093,900. This projected expenditure is \$5,274,195 less than SCDE's budgeted expenditures (cost of instruction) of \$45,368,095.

CERDEP Participation in Non-public Settings

The Office of First Steps provided 2018-19 student enrollment data based on enrolled students with Student Unique Identifier Numbers. Table 38 is based on a rolling enrollment, showing 2,915 students were enrolled in a non-public CERDEP classroom at some point between August 20 and December 1, 2018.²⁸ Non-public CERDEP student enrollment in Table 38 is based on the non-public providers' geographic location by county. There were 1,945 students (defined as full-time equivalents) enrolled in non-public CERDEP during the 2017-18 school year. Students enrolled in a non-public setting are identified by the child's county of residence and not school district. However, student eligibility is based on the child's school district of residency. Horry and Richland counties account for almost 28 percent of total non-public CERDEP enrollment. During the 2017-18 school year, the student attrition rate was 11.3 percent for non-public CERDEP students. Based upon prior year's full-time equivalents and the budgeted full-time equivalents for 2018-19, it appears First Steps has incorporated anticipated student attrition into their budget projections.

²⁸ Unlike SCDE's 45-Day Count, which reflects the actual enrollment on the 45th day of school, First Steps provided rolling enrollment data and does not report actual non-public CERDEP enrollment on December 1, 2018.

Table 38
Non-public CERDEP Rolling Student Enrollment by County during 2018-19 School Year²⁹

County	Number of Students	Percent of Students	County	Number of Students	Percent of Students
Abbeville	1	0.03	Greenwood	31	1.06
Aiken	213	7.31	Hampton	16	0.55
Allendale	2	0.07	Horry	416	14.27
Anderson	46	1.58	Jasper	20	0.69
Bamberg	39	1.34	Kershaw	58	1.99
Barnwell	33	1.13	Laurens	107	3.67
Berkeley	93	3.19	Lee	33	1.13
Calhoun	1	0.03	Lexington	90	3.09
Charleston	1	0.03	Marion	111	3.81
Cherokee	29	0.99	Marlboro	21	0.72
Chester	15	0.51	Newberry	27	0.93
Chesterfield	8	0.27	Oconee	27	0.93
Clarendon	3	0.10	Orangeburg	124	4.25
Colleton	16	0.55	Richland	395	13.55
Darlington	48	1.65	Saluda	13	0.45
Dillon	50	1.72	Spartanburg	167	5.73
Dorchester	5	0.17	Sumter	194	6.66
Edgefield	12	0.41	Union	58	1.99
Fairfield	9	0.31	Williamsburg	43	1.48
Florence	261	8.95	York	31	1.06
Georgetown	48	1.65			
TOTAL				2,915	

Source: SC First Steps Response to EOC Data Request, Received November 2018.

²⁹ Student enrollment in CERDEP in a non-public setting at some point between August 20 and December 1, 2018.

Table 39 shows an estimated \$7.6 million in First Steps carry forward (or cash balance) to FY 2019-20. The estimated cost of instruction of \$9.1 million is based on a projected enrollment of 2,018 students in non-public settings. December 2018 CERDEP enrollment in non-public settings is 2,915 students (see Table 38). For 2018-19, increases in salaries and fringe benefits are due to two additional regional coordinators being hired to provide technical assistance and support to CERDEP providers. Each regional coordinator support about 20 providers, with a lead coordinator supporting five to seven centers and leading professional development for regional coordinator staff and assisting with planning and implementation of statewide 4K professional development opportunities. There are three additional temporary staff positions that are being changed to permanent positions. Two additional staff are now dedicated to First Steps' CERDEP program, including a data manager and a fiscal manager.³⁰ During the summer of 2018, First Steps also conducted a CERDEP outreach campaign, mailing a CERDEP information postcard to approximately 48,000 households. In July 2018, First Steps mailed 15,000 household associated with Temporary Aid for Needy Families or Supplemental Nutrition Assistance Program. In late September 2018, First Steps mailed 33,000 households or Medicaid-eligible children.³¹

³⁰ EOC staff meeting with SC First Steps Staff, October 4 and November 5, 2018.

Table 39
Office of First Steps Estimated Budget Fiscal Year 2018-19

TOTAL Available Funds	
Carry forward from FY18 to FY19	\$9,736,885
State Funds Expended and On-Hold locally	\$0
Interest Earned on Cash	Not reported
EIA Funds	\$9,767,864
General Fund	\$6,521,510
Teacher Supply Funds	\$60,500
TOTAL Available Funds	\$26,086,759
TOTAL Actual Transfers/Expenditures	
Transfers:	
Portion of EOC Evaluation	\$105,000
Allocation to EOC per Proviso 1.72. and 1A.65. for Community Block Grants for Education Pilot Program	\$1,000,000
First Steps Provisos:	
Quality Proviso for First Steps per Proviso 1.72	\$1,000,000
Technology Proviso for First Steps per Proviso 1.68	\$75,000
<i>Subtotal for Transfers and Provisos</i>	\$2,180,000
TOTAL Available Funds	\$23,906,759
Agency Expenditures:	
Salaries	\$1,471,121
Fringe Benefits	\$537,689
Contractual Services	\$500,000
Supplies and Materials	\$300,000
Rental/Leased Space	\$150,000
Travel	\$200,000
Capital Equipment	\$10,000
<i>Subtotal for Agency Expenditures:</i>	\$3,168,810
TOTAL Actual Transfers/Expenditures	
Payments to Centers:	
Instruction (\$4,510 per child pro-rata)	\$9,100,982
Expansion	\$2,514,582
Supplies and Materials for Classrooms	\$900,000
Stipends	\$298,000
Substitute Teacher Reimbursement	\$2,000
Teacher Supplies	\$60,500
Transportation	\$200,000
<i>Subtotal for Center-Level Expenditures:</i>	\$13,076,064
TOTAL Expenditures	\$16,244,874
Outputs	
Full-Time Equivalents	2,018
Funds Carried Forward to FY19	\$7,661,885

Provided by SC Office of First Steps, October 2018.

Note: Administration includes salaries, contractual services, travel, equipment and rental/leased space.

*Note: Full-time equivalent served is determined by dividing the total number of funds expended for instructional services by \$4,510, the per child maximum reimbursable rate.

³¹ EOC staff meeting with SC First Steps Staff, October 4, 2018.

Summary

Table 40 summarizes SCDE's and First Steps' 2018-19 budget and the EOC projection for actual CERDEP expenditures, carry forward and students enrolled for the 2018-19 school year. SCDE reports 9,705 children were enrolled in CERDEP at the 45-Day Student Count. As of December 2018, First Steps reports 2,915 children were enrolled CERDEP at some point during the August 20 through December 1, 2018 time period. During the 2017-18 school year, the student attrition rate was 8.4 percent for public CERDEP students and 11.3 percent for non-public CERDEP students. Based upon prior year's full-time equivalents and the budgeted full-time equivalents for 2018-19, it appears First Steps has incorporated anticipated student attrition into their budget. Using 2017-18 attrition rate of 8.4 percent in public schools, it is projected 10,908 students will be enrolled at the end of the 2018-19 school year: 8,890 public CERDEP and 2,018 non-public CERDEP students. The projected decrease in public CERDEP enrollment yields a decrease of approximately \$5.2 million in estimated expenditures³². Projected expenditures for SCDE are \$45.2 million as shown in Table 40. A projected enrollment of 8,890 public CERDEP students in the 2018-19 school year is a decrease from the public CERDEP enrollment of 9,789 students in the 2017-18 school year. First Steps budgeted for an increase of 73 students (defined as full-time equivalents) during the 2018-19 school year.

Table 40
EOC Analysis of Preliminary CERDEP Program and Financial Data for FY 2018-19

	SCDE	First Steps	TOTAL
SCDE and First Steps Budget			
Total Available Funds	\$57,781,243	\$26,086,759	\$83,868,002
Budgeted Transfers and Expenditures for 2018-19	\$50,518,590	\$18,424,874	\$68,943,464
Budgeted Carry Forward to 2019-20	\$7,262,653	\$7,661,885	\$14,924,538
Total Students Budgeted	10,060	2,018	12,078
EOC Projection			
Projected Transfers and Expenditures Based on 45-Day Count and 8.4% Attrition Rate in Public Schools	\$45,244,395	\$18,424,874	\$63,669,269
Total Projected Carry Forward	\$12,536,848	\$7,661,885	\$20,198,733 ³³
Projected Students Based on 45-Day Count and 8.4% Attrition Rate in Public Schools	8,890	2,018	10,908

³² The difference between \$7,262,653 in SCDE budgeted carry forward and \$12,536,848 in projected carry forward is \$5,274,195.

³³ Both SCDE and First Steps verified project carry forward amounts January 9, 2019.

In 2018-19, there was an overall increase of 3 schools and 22 non-public providers participating in CERDEP. This increase resulted in a slight increase in 801 total classrooms participating in CERDEP in 2018-19. In RAND's Cost Analysis in Section 2, RAND noted three of the five center-based sites in its study operated below the 20-student capacity.³⁴ Therefore, it cannot be assumed each newly participating non-public classroom will include 20 CERDEP-eligible children. Non-public CERDEP classrooms may have other funding sources, including tuition-paying students and/or students who receive other funding, such as SC Vouchers.

Table 41
Number of Schools and Providers during 2017-18 and 2018-19

	SCDE 18-19	First Steps 18-19	Total 18-19	SCDE 17-18	First Steps 17-18	Total 17-18
Number of New Classrooms	12	34	46	25	28	53
Total Number of Classrooms	601	200	801	589	208	797
Total Number of Participating Schools or Non-public Providers	247	212	459	244	190	434

Findings and Recommendations

Finding 31: There is a slight increase in the total number of CERDEP classrooms in 2018-19, but the number of CERDEP students projected to be funded as full-time equivalents is projected to decline from 2017-18 to 2018-19.

- There were 11,734 full-time equivalents in 2017-18. The number of full-time equivalents funded during the current 2018-19 school year is expected to decrease to approximately 10,908 students: 8,890 projected full-time equivalents in public CERDEP and 2,018 budgeted full-time equivalents in non-public CERDEP.

Finding 32: Due to the projected decrease in the number of full-time equivalents in 2018-19, projected carry forward to 2019-20 may reach almost \$20.2 million, instead of the \$14.9 million carry forward that is budgeted by SCDE and First Steps.

- SCDE's projected carry forward is an additional \$5,274,195 than the amount SCDE has initially budgeted. The projected carry forward does not include an estimate of the cost of SCDE's plans to expend the carry forward. SCDE provided a narrative plan to expend carry forward, but expenditure amounts were not provided.

Recommendation 8: SCDE and First Steps should consider prior years' attrition rates when developing future budgets and program plans. Analyzing attrition rates and including them in the CERDEP budgeting process may result in more realistic estimates of expenditures (instructional costs, classroom costs) and future carry forward amounts.

³⁴ Section 2, "Provider-Based information on CERDEP Costs," p. 30.

IV. Cost Analysis for Future CERDEP Funding (RAND Corporation)

RAND CERDEP 2017--2018 COST ANALYSIS REPORT (PRERELEASE VERSION)

[Prerelease Version] Research Report

Cost Analysis of the South Carolina Child Early Reading and Development Education Program

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RAND Education and Labor

RR-2906

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This document has been formally reviewed and edited but not proofread. The final published version will be available on RAND's website at https://www.rand.org/pubs/research_reports/RR2906.html. RAND's publications do not necessarily reflect the opinions of its research clients and sponsors. RAND is a registered trademark.



Preface

CERDEP is a state-funded full-day four-year-old pre-kindergarten (4K) program for children at risk of not being ready to start kindergarten. Eligible children include those who live in districts with a score of 70 percent or higher on the state poverty index and whose family income is at or below 185 percent of the federal poverty guidelines or those eligible for Medicaid. The program is implemented using a mixed-delivery system, with both public schools and licensed private center-based providers able to serve eligible children. Reimbursement occurs through a per-pupil funding amount which stood at \$4,422 for the 2017–18 academic year. In that year, the program funded about 11,700 children, with more than 80 percent of children attending classrooms in public schools.

As part of an ongoing commitment by the South Carolina legislature to evaluate aspects of the South Carolina Early Reading Development and Education Program (CERDEP), the South Carolina Education Oversight Committee (EOC) contracted with the RAND Corporation to address questions related to per pupil costs, teacher credentials, and teacher professional development. The focus of this report is the first topic: assessing the per pupil cost to deliver CERDEP as of the 2017–2018 academic year and comparing those estimates with the current instructional reimbursement rate provided by the state. More specifically, this report addresses the following questions:

- What are the “ingredients,” in terms of personnel, facilities, educational materials, and other supplies, required to deliver CERDEP in public and private settings? What are the sources of potential variation in program costs?
- What is the estimated per-pupil cost of CERDEP? Does the per-pupil cost vary by key programmatic features, such as public versus private settings, teacher qualifications, student enrollment, or geographic area?
- How does the per-pupil cost compare to the current per-pupil reimbursement rate for CERDEP providers?

This study will be of interest to the policymakers and practitioners associated with CERDEP, as well as those interested more generally in the costs of state-funded preschool programs.

A second report from the project will examine the other two topics related to teacher credentials and professional development.

This study was undertaken by RAND Education and Labor, a division of the RAND Corporation that conducts research on early childhood through postsecondary education programs, workforce development, and programs and policies affecting workers, entrepreneurship, financial literacy, and decisionmaking.

More information about RAND can be found at www.rand.org. Questions about this report should be directed to karoly@rand.org, and questions about RAND Education and Labor should be directed to educationandlabor@rand.org.

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Summary

In the 2006–2007 school year, the state of South Carolina began funding a full-day four-year-old kindergarten (4K) pilot program in the state’s poorest districts.¹ The pilot program was founded in response to a state supreme court case ruling in a decades-long legal challenge to South Carolina’s public school–funding formula. At the time, funds for the pilot program were made available to the plaintiff school districts in the supreme court case, all of which served a high proportion of low-income families. Eight years later, in 2014, the pilot program was signed into law, made permanent, and named the South Carolina Early Reading Development and Education Program (CERDEP). CERDEP is the state’s primary initiative to promote school readiness among low-income children by providing high quality early childhood education free of charge to families.

Currently, eligible children must live in a district with a poverty index of 70 percent or higher, come from a family whose income is at or below 185 percent of the federal poverty guidelines, or be eligible for Medicaid. The program is implemented using a mixed-delivery system, with both public school districts and licensed private early care and education (ECE) centers able to serve eligible children. Oversight of the public district-based programs is provided by the South Carolina Department of Education (SCDE), while South Carolina First Steps to School Readiness (First Steps)—the statewide public-private partnership to increase school readiness—oversees implementation in private centers. In the 2017–2018 school year, CERDEP served about 11,700 students, with the large majority of children, about 83 percent, attending the program in public school districts.

Documenting and understanding the costs of CERDEP is necessary for education leaders in South Carolina to continue to deliver a high-quality 4K program. In the 2017–2018 school year, the focus of this report, the state reimbursed CERDEP providers \$4,422 per pupil to cover the costs of instruction for a traditional 180-day school year, with 6.5 hours of instruction per day. Research indicates that the full cost of early childhood programs like CERDEP can be challenging and costly to estimate. States and early childhood leaders do not always know the true program costs when funding policies and mechanisms, such as per-pupil reimbursement rates, are put in place. According to a recent report from the National Academies of Sciences, Engineering, and Medicine (NASEM), when ECE program reimbursement rates are not sufficient for covering program costs, providers may not be able to deliver high-quality services in the long run, with consequences for the stability and sustainability of the statewide program.

¹ We use the term 4K to refer exclusively to preK programs for four-year-olds, and 3K to refer to those for three-year-olds. We use prekindergarten, or preK, to refer generally to early education programs of various kinds (e.g., state or federally funded programs, or private pay programs) for three- and four-year-old children.

Thus, in an effort to inform CERDEP stakeholder decisions on CERDEP reimbursement policy, we estimate the full cost for CERDEP providers in the public and private sectors to deliver the services consistent with the program requirements. More specifically, we apply rigorous methods to address the following questions:

- What are the “ingredients,” in terms of personnel, facilities, educational materials, and other supplies, required to deliver CERDEP in public and private settings? What are the sources of potential variation in program costs?
- What is the estimated per-pupil cost of CERDEP? Does the per-pupil cost vary by key programmatic features, such as public versus private settings, teacher qualifications, student enrollment, or geographic area?
- How does the per-pupil cost compare to the current per-pupil reimbursement rate for CERDEP providers?

The first question is important for understanding the resources required to implement CERDEP, a fundamental first step toward understanding program costs. With that foundation, it is possible to then estimate CERDEP costs for specific providers based on their expenditures for CERDEP or for provider types based on a cost model (where assumptions are made about the provider circumstances, the resources required, and their prices; sometimes also called a cost-estimation model or cost calculator). Based on either data from specific providers or from a cost model, it is then possible to compare program expenditures with the per-pupil reimbursement rate to determine if the state funding is adequate to cover the program costs.

In the remainder of this summary, we first provide a brief overview of our approach to answering the study questions and then highlight the resulting key findings. We conclude with the important policy implications of our findings and the recommendations informed by the cost analysis.

Approach and Limitations

We use two complementary methods to address the three study questions: (1) collecting information on CERDEP expenditures from a small number of illustrative public and private providers; and (2) developing a cost model, informed by the providers we spoke to, to estimate CERDEP per-pupil cost under baseline assumptions and the variation in cost per pupil under alternative assumptions (e.g., program scale, local price differences, teacher qualifications and compensation, provisions of transportation). For both approaches, we focus on estimating the total cost for CERDEP providers to deliver the services consistent with CERDEP requirements. To assess total cost, we include both direct classroom-based resources required to implement the CERDEP model, as well as indirect resources that support program delivery, such as program administration and operations.

The first approach relies solely on data collected from interviews with ten purposefully selected CERDEP providers—five school districts and five private center-based providers. All

ten providers gave information on their program structure and features (e.g. number of children, classrooms, and staff; program services; sources of revenue). Following the interviews, nine providers sent further detailed financial information on their program expenditures; one of the school districts opted out of sending financial information. The approach yielded in-depth information from CERDEP providers across the state regarding the resources required for CERDEP implementation (our first study question), as well as illustrative estimates of program cost per pupil served (our second question) and whether CERDEP reimbursement was sufficient to cover total costs (our third question).

The second model-based approach builds upon well-established cost calculators developed for modeling the cost of 4K programs, modified to account for the features of CERDEP (e.g., the option to offer transportation services) and informed by the illustrative providers. We also draw on other information sources, such as salary data for South Carolina and statewide school enrollment data for the 61 South Carolina districts that offered CERDEP in 2017–2018 (out of 82 districts in the state).

The model produces estimates of per-pupil costs—in total and by major cost components—for CERDEP providers under varied circumstances. In particular, by examining four baseline provider scenarios and a variety of sensitivity analyses, the model allows us to examine how per-pupil CERDEP cost would be expected to vary according to the following factors, all of which are established cost drivers of 4K programs:

- **Provider type:** We estimate costs for school district programs and private center-based programs.
- **Staff compensation:** For private centers, we estimate costs assuming compensation parity with the salaries and benefits of public school 4K teachers and for the lower compensation levels, on average, in private centers.
- **Highest degree of lead teacher:** Again, for private centers, we estimate costs assuming the lead teacher has a bachelor's degree versus an associate degree, an option under the CERDEP program requirements.
- **Price variation across geographic locations:** We estimate costs based on typical (i.e., median) salaries and other costs, as well as lower- versus higher-cost areas in the state.
- **Program size:** Costs are estimated for providers with one, two, and four CERDEP rooms.
- **Class size:** We estimate costs assuming the maximum class size (also known as *group size* in the ECE context) of 20 children, as well as smaller class sizes, specifically 15 and 18 children. Because we always assume two teachers in the classroom, the variation in class size is associated with a corresponding change in the staff-child ratio.
- **Expenditures for rent:** We estimate costs with and without rental costs.

- **Expenditures for transportation:** Because transportation services are optional, we estimate costs with and without transportation services being provided.

To capture these factors, the baseline cost model estimates per-pupil costs for four illustrative provider types (described in more detail in a later section) with assumed features that are as realistic as possible in terms of the cost structure that providers face in South Carolina and that also represent important sources of variation in CERDEP costs. In this way, the cost model in the second methodological approach serves to illustrate how costs vary with the provider's circumstances. In addition, the model has the advantage of providing a standardized way to compare per-pupil cost under alternative scenarios where we vary one cost parameter at a time, holding other parameters constant. This approach then is particularly relevant for addressing the second study question, beyond what we might learn from a sample of providers.

We also examine how much of the estimated per-pupil costs under the various provider circumstances would be covered by the per-pupil CERDEP reimbursement, our third study question. The cost model captures the providers' experience regarding program expenditures which can be compared with program revenue sources from the public sector (e.g., the per-pupil CERDEP reimbursement). This allows us to determine if the per pupil reimbursement rate is adequate to cover program costs for some provider types but not for other types.

Finally, to provide a point of comparison for South Carolina's CERDEP per-pupil reimbursement rate, we collected information about the reimbursement rates for state-funded full-day 4K programs in nine other nearby states: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, Virginia, and West Virginia. We also considered the reimbursement rates for the South Carolina Voucher program (SC Vouchers), funded under the federal Child Care and Development Fund (CCDF), which subsidizes the cost of child care and early learning programs in private settings for low-income working parents with children up to age 12.

Our overall approach does have several limitations that are important to understand. For our first approach, given the small number of providers for which we gathered expenditure data, we stress that we are not able to report an average statewide total per-pupil cost for CERDEP. While these programs were purposefully selected to represent different characteristics of CERDEP providers (e.g., both public and private providers of varying sizes in different parts of the state), if there are cost elements associated with CERDEP delivery not reflected in the expenditures for the ten providers, we may omit some costs. However, we also rely on well-established cost calculators developed for modeling the cost of 4K programs, which ensures that we are likely to capture the most important cost components. Further, we rely on providers' self-reports of program costs. Program expenditures can be difficult to track and report for many providers, thus there is likely to be some measurement error in our estimates for the specific providers.

In the case of the model-based estimates of CERDEP costs, we must make assumptions about program structure (e.g., program size, the number of classrooms, children per classroom), the associated resource requirements given the program structure, and the corresponding prices for those resources (e.g., staff salaries, occupancy costs). Our assumptions are informed by the

information from the ten providers and other 4K cost models. Nevertheless, varying our key assumptions may produce somewhat different estimates of cost.

Key Findings

Our findings are organized by the three study questions enumerated above and summarized in the text box that follows.

Cost Ingredients and Sources of Cost Variation

Based on information on CERDEP costs provided by five school districts and five private providers, we confirmed that the delivery of CERDEP requires expenditure in multiple categories that we group as: personnel-related, namely salaries and benefits for classroom staff and administrative staff, as well as professional development; program-related, such as classroom supplies and other instructional supports, food service, daily transportation and transportation for special events (e.g., field trips); occupancy-related, including rent (or mortgage and taxes), utilities, and repairs and maintenance; and a host of administrative costs associated with program operations from office supplies to licensing and staff clearance fees. These cost elements are similar to those identified in other cost studies of 4K programs, and are typically included in ECE program cost models (with the possible exception of transportation costs).

At the same time, despite operating programs under a common set of requirements, there are important differences across CERDEP providers that have implications for per-pupil cost. The most meaningful of these differences are:

- **Compensation:** The data from providers confirmed what has been well documented elsewhere: striking differences in salary levels and benefits packages between public school district–based programs and private centers. For our illustrative providers, lead teachers in public schools, for instance, had salaries that ranged from \$35,000 to \$52,000 compared with \$25,000 to \$43,000 for the lead teachers in private centers. These salary differences across provider type exist even for lead teachers with a bachelor’s degrees and ECE specialization. Moreover, the benefits package for public school teachers included subsidized health, dental, and vision insurance; a retirement plan; and time for paid leave, among other benefits. In total, benefits for public school teachers equated to about 45 percent of their salaries, compared with a fringe-benefit rate of about 12 percent for private centers, which mostly consisted of payroll taxes.
- **Transportation:** While all district-based CERDEP sites provide transportation services, just two of the private centers also provide transportation. For one center, the bus drivers assist in the classrooms once the children arrive at the center and they reprise their driving role in the afternoon.

Key Findings

Cost Ingredients and Sources of Cost Variation

- Delivery of CERDEP requires expenditures in multiple categories including costs for personnel, classroom materials and other instructional supports, food service, transportation, occupancy, and program administration.
- Key sources of variation in program cost structure include staff compensation levels, whether transportation services are provided, and whether the program pays rental costs (or the equivalent).

Per-Pupil Costs and Variation by Provider Context

- Based on our baseline cost model, the estimated all-inclusive annual per-pupil cost for the traditional CERDEP option (180-day school year at 6.5 hours per day, 20 pupils per classroom, state median salaries and benefits), when delivered at a site operated by a public school district, with transportation costs and rent, was about \$11,000 in 2017 dollars (or just over \$10,000 per pupil if there are no rental costs for the public site).
- The estimated per-pupil cost was almost identical for a private center-based program, with the same program features (including teacher qualifications) and parity with public school salaries and fringe benefits.
- When the private program is assumed to pay the lower wages and benefits consistent with other private child care programs, the estimated per-pupil cost falls to about \$7,000. The \$4,000 per pupil difference is entirely attributable to the public-private compensation differential.
- Assuming a CERDEP program is delivered in a higher-cost area (approximately the 75th percentile of salaries in the state), estimated per-pupil costs were about 18 percent higher. In a lower-cost area (the 25th percentile of salaries in the state), per-pupil costs were about 11 to 14 percent lower. The difference in per-pupil costs between lower- and higher-cost communities was \$2,000 to \$3,500 depending on the provider context.
- The differences attributable to program scale were small, given the model's assumptions. In contrast, costs were up to 10 percent higher and up to 27 percent higher when the class size fell to 18 pupils per classroom or to 20 pupils per classroom, respectively. This may occur if providers intentionally seek to lower class size, or it may reflect underenrollment.

CERDEP Cost Versus Reimbursement

- With the 2017–2018 CERDEP instructional reimbursement rate of \$4,422 per pupil for the traditional CERDEP option (the program variant we model), coupled with CERDEP transportation reimbursement (private centers only) and subsidized food costs, the total reimbursement per pupil falls short of provider costs by as much as 50 percent. The same is true for the hourly and daily reimbursement rates that apply for extended-day or extended-year options,
- The reimbursement gap is larger when compensation in private centers is equivalent to public school salaries and benefits, for providers in higher cost areas, and for providers that operate with a lower class size.
- Given a CERDEP per-pupil reimbursement rate which is the same regardless of provider context, the size of the differential between per-pupil cost and reimbursement will vary substantially across CERDEP providers based on their compensation schedule, geographic locale, class size, and other features that drive per-pupil costs.

- **Occupancy:** We defined occupancy costs to include rent (or mortgage and property taxes), along with utilities, repair, and maintenance. None of the public school CERDEP sites reported costs for rent or a mortgage because their buildings are fully owned. In addition, two of the five centers, those located in church buildings, reported receiving the use of their center space without charge.

Other differences in CERDEP operations that have implications for cost include the size of the group of children in the CERDEP room and the overall program size. As part of the cost model we develop, we consider the sensitivity of per-pupil CERDEP costs to variation in these key program features: compensation, transportation, occupancy, class size, and program size.

Per-Pupil Costs and Variation by Provider Context

Given the small number of CERDEP providers for whom we gathered cost information, we focus on the per-pupil cost estimates derived from our cost model. It is important to keep in mind that the model results are for illustrative programs and are conditional on a set of assumptions regarding the provider context and program structure that are designed to be as realistic as possible. The model produces robust findings that speak to the nature of the cost structure of CERDEP 4K programs.

In particular, the baseline cost model includes four illustrative provider contexts for CERDEP delivery, one that applies to public school–district programs and three that pertain to private centers (see Table S.1). The four types were selected to allow comparisons along three key provider features: public versus private and, for private providers, compensation levels and lead teacher qualifications. (The feature that changes in moving from type A to type B, from type B to type C, and from type C to type D is outlined with a box in Table S.1.) Other sources of cost differences are explored in sensitivity analyses.

In the model baseline, all four contexts assume the traditional CERDEP option: operating for 6.5 hours per day for 180 days per year. CERDEP enrollment is assumed to be 40 children in two classrooms of 20 children each. In the baseline, all program types are assumed to pay rent or have a mortgage for their facility and to offer transportation services (even though transportation is optional). For the **type A** public program site, total enrollment across all grades is assumed to be 450 students at baseline. For the type B, C, and D private centers, total enrollment is assumed to be 120 children, from infancy to 4K.

Like the type A public site, the **type B** private center is assumed to employ lead CERDEP teachers with a bachelor's degree and compensation (salaries and fringe benefits) is assumed to be the same as those in public 4K programs. The private center provider type B is also assumed to have a lower total enrollment than type A, at 120 children in total across all ages, reflecting the different overall size of an elementary school site versus an ECE center. Thus, the differences between type A and type B programs are whether the provider is a public school district or a private center and the overall size of the school or program.

Table S.1. Key Assumptions for Four Provider Types for CERDEP Cost Model

Features	Type A	Type B	Type C	Type D
Setting	School district school or center	Private center	Private center	Private center
Lead teacher qualifications	Bachelor's with ECE	Bachelor's with ECE	Bachelor's with ECE	Associate degree
Compensation	Public school salaries and benefits	Pay parity with public site (Type A)	Center salaries and benefits	Center salaries and benefits
Total school or center enrollment	450	120	120	120

SOURCE: Author's assumptions.

NOTES: All provider types are assumed to offer the traditional CERDEP (6.5 hours per day and 180 days per year) with three CERDEP rooms in the site and full enrollment of 20 children. Facility rent (or mortgage) and transportation services are all assumed for all four types. The feature that changes in moving from type A to type B, from type B to type C, and from type C to type D is outlined with a box.

Type C private centers differ from type B centers only in having compensation consistent with pay for center-based ECE programs. **Type D** private providers are the same as type C, with the exception that the lead teacher has an associate (two-year) degree, the minimum education qualification for private centers under CERDEP. For the baseline model, we assume median salaries for South Carolina teachers and teachers in child care centers. Other unit costs are based on average prices for the state.

We present model-based estimates for CERDEP unit costs—per pupil, per pupil day, and per pupil hour—in Table S.2. Key findings are as follows:

- In our baseline model, the estimated all-inclusive per-pupil cost for the traditional CERDEP option (academic school year at 6.5 hours per day), when delivered at a site operated by a public school district, was about \$11,000 (see provider type A in Table S.2). For a private center operating with the same salary and benefit structure as the public schools, the equivalent per-pupil cost was almost identical. Thus, there is no inherent difference in CERDEP costs in public versus private settings when compensation levels are assumed to be the same and the program pays rent (or a mortgage) for its space.
- A more substantial difference in per-pupil (or per-pupil-day or per-pupil-hour) costs was between CERDEP delivered in private centers, where compensation followed center-based rates (either for a lead teacher with a bachelor's degree or an associate degree as allowed under the CERDEP requirements), versus where compensation followed public school teacher compensation. Estimated per pupil cost is about \$7,000 based on typical center-based salaries (Types C and D in Table S.2). The cost differential of \$4,000 per pupil in comparing type A or B providers with type C or D is entirely attributable to the higher salaries and benefits in the public school programs or private centers with public school compensation parity.

Table S.2. Model-Based Estimated CERDEP Unit Costs, Baseline Model by Provider Type (2017 Dollars)

	Type A	Type B	Type C	Type D
Cost Component	Public Site	Private Center, Pay Parity with Public Site	Private Center, Center Salaries	Private Center, Center Salaries and Associate Degree
Cost per pupil	10,933	10,932	7,097	6,968
Cost per pupil day	60.74	60.74	39.43	38.71
Cost per pupil hour	9.34	9.34	6.07	5.96

SOURCE: Authors' analysis.

- The other significant cost drivers were associated with local salary and price differentials, class size below the allowed level of 20 children per classroom, and whether space rental or mortgage costs (a subset of occupancy costs) were included. These differences in estimated per pupil costs are summarized in Table S.3.

CERDEP Cost Versus Reimbursement

Drawing on the model-based per-pupil cost estimates, we reach a number of key conclusions regarding the adequacy of the reimbursement rates available to public and private CERDEP providers.

Table S.3. CERDEP Per-Pupil Cost by Provider Type Under Alternative Scenarios (2017 Dollars)

	Type A	Type B	Type C	Type D
Scenario	Public Site	Private Center, Pay Parity with Public Site	Private Center, Center Salaries	Private Center, Center Salaries and Associate Degree
Baseline	10,933	10,932	7,097	6,968
Salaries and unit cost				
Lower-cost areas	9,376	9,359	6,316	6,211
Higher-cost areas	12,845	12,819	8,380	8,207
Program size				
2 CERDEP rooms	11,228	11,601	7,599	7,469
5 CERDEP rooms	10,898	10,611	6,895	6,766
Class size				
18	11,996	11,791	7,623	7,479
15	13,931	13,361	8,525	8,353
Without rent ^a	10,059	10,059	6,224	6,095
Without transportation	10,683	10,682	6,847	6,718

SOURCE: Authors' analysis.

^a Rent is a component of occupancy costs. Still included in occupancy costs are utilities, along with repair and maintenance.

- With an instructional reimbursement rate of \$4,422 per pupil for the traditional CERDEP option (the program variant we model), it is quickly evident that the reimbursement per pupil across the scenarios we examined falls short by as much as 50 percent of the estimated CERDEP per-pupil cost. Likewise, the hourly and daily reimbursement rates for extended-day or extended-year programs fall short of the model-based estimated hourly and daily costs.
- This gap between total cost and reimbursement also holds when we consider the additional per-pupil reimbursement for CERDEP providers that provide transportation and the potential reimbursement for meals under the U.S. Department of Agriculture Child and Adult Care Food Program (CACFP), a federal entitlement program. Together these public funds bring the total potential reimbursement to \$5,900 per pupil, but that still falls short of total per-pupil costs given our cost model assumptions.
- Even when we consider a narrower portion of provider costs, namely the cost components most directly attributable to a CERDEP classroom, the per-pupil reimbursement rate is not sufficient to cover the direct instructional costs, except in private centers paying the lower salaries consistent with private child care centers.
- The gap analysis also demonstrates that, given a CERDEP per-pupil reimbursement rate which is the same regardless of provider context, the size of the differential between per-pupil cost and reimbursement will vary substantially across CERDEP providers based on their compensation schedule, geographic locale, class size, and other features that drive per-pupil costs. This introduces differentials across providers in the extent to which their CERDEP costs are covered by state (or federal) funds and thus the amount of funds per pupil needed from other public or private sources to fill the gap.

Policy Considerations

The findings from our analysis raise a number of policy considerations regarding the reimbursement of CERDEP public and private providers for the services they provide. We highlight five issues in particular.

Using a Single Reimbursement Rate Versus One that Varies by Provider Context

Our analysis demonstrates that CERDEP providers, when meeting CERDEP requirements, will deliver the program with different total cost per pupil and those differences can be substantial, equating to several thousands of dollars in total per-pupil costs according to our cost model. These differences arise because of variation in compensation levels and unit prices for other resources across geographic locales, class size, and lead teacher qualifications (in the case of center-based providers), among other factors. Some of these factors are determined by providers (e.g., desired class size); others are beyond their control (e.g., local price levels).

These differences in provider cost per pupil, whether under the control of the provider or not, raise the issue of whether the reimbursement mechanism should account for cost variation through varying reimbursement rates. Currently, by using a single statewide reimbursement rate for CERDEP, the cost differences are not being recognized. With a single rate, the extent to which a provider’s costs are covered by the reimbursement will vary. Providers in lower-cost areas would cover a greater portion of their costs relative to providers in higher cost areas, all other factors held the same. Providers with a class size below 20 would have a smaller portion of their costs covered relative to providers with 20 children in each CERDEP room, all else equal.

In comparison with the nine other neighboring states we reviewed, South Carolina is not alone in using a single reimbursement rate regardless of the provider circumstance, as Alabama, Mississippi, Tennessee, and Virginia use this same approach (see the first column in Table S.4). However, five other states—Florida, Georgia, Kentucky, North Carolina, and West Virginia—do vary the reimbursement rate for their state-funded 4K program by provider context (specific features are referenced in the discussion that follows). Likewise, the reimbursement rate under SC Vouchers also varies with provider context.

If the structure of the reimbursement rate schedule accurately mirrors the pattern of cost differences by provider circumstances, a reimbursement schedule that varies with the provider context will allow for more equal treatment in the extent to which provider costs are covered. This approach, however, introduces more complexity into the process of administering provider reimbursements, which may raise program central administrative costs.

Table S.4. Reimbursement Features of State-Funded 4K Programs in Selected States

State Program	Reimbursement Rate Varies	Factors Tied to Reimbursement						Local Funds Expected To Supplement Reimbursement
		Location	Teacher Education and Compensation	Public Versus Private Provider	Class Size	Child Disability Status	Days of Services	
AL								✓
FL	✓	✓						
GA	✓	✓	✓	✓	✓		✓	
KY	✓					✓		
MS								✓
NC	✓		✓	✓				
SC								
TN								✓
VA								✓
WV	✓		✓					

SOURCES: State 4K program websites and other materials documented in Appendix B.

Which Sources of Cost Variation to Recognize in the Reimbursement Rate Schedule

In moving beyond a single reimbursement rate, consideration must be given as to which sources of cost variation to recognize and how many dimensions in total to accommodate in the rate schedule. As more and more dimensions of variation are incorporated in the reimbursement rate schedule, administration of the reimbursement process becomes more and more complex. At the extreme, a reimbursement rate could be assigned to each provider based on its program features, the equivalent of negotiating individual provider contracts that specify the reimbursement rate. Such contracts are employed in some state and local 4K programs, such as North Carolina's 4K program and New York City's universal preschool program.

In Table S.4 we detail the factors tied to reimbursement for the five states that vary their reimbursement rate. We identified six sources of variation in these states: geographic locale; teacher education and compensation; private versus public provider status; class size; child disability status; and the number of days programs offer services. Most of the five states only vary their reimbursement rate by one two of these factors; teacher education and compensation was the most common source of variation. Georgia was the exception to this pattern, as the rates in this state vary by all the identified factors, except for child disability status. In the case of SC Vouchers for four-year-olds in full-day programs (like CERDEP), the reimbursement rate varies by geography and quality rating.

Assuming a limited number of sources of cost variation would be recognized because of administrative costs considerations, the challenge becomes identifying which sources to recognize and how many dimensions in total to incorporate. Criteria to consider could include:

- **Whether the variation in costs is outside of the provider's control.** For example, this would mean incorporating variation in the reimbursement schedule based on variation in costs across geographic locales.
- **Whether choices providers make increase program quality.** This would mean recognizing the higher per-pupil cost for private providers who opt to employ lead teachers with a bachelor's degree in ECE or a related field instead of their counterparts with an associate degree or those private providers that elect to achieve compensation parity with public providers. By linking higher per pupil reimbursement to providers choosing evidence-based higher-quality program features (such as the SC Vouchers provider payment schedule), the reimbursement schedule signals the priority given to high quality and thereby incentivizes providers to operate with high-quality features.
- **Whether the program feature supports other policy objectives.** An example would be supporting families' access to 4K programming. The current CERDEP reimbursement for transportation costs could be viewed as contributing to this goal. The additional reimbursement for a longer day or longer year is another example of adding costly features that support families and their need for care.

- **Whether a program component is one where providers qualify for reimbursement with other public funds.** An example would be excluding a reimbursement component for meals when providers qualify for CACFP reimbursement.

How Much of Provider Costs to Cover

Assuming all relevant dimensions of cost variation are identified for per-pupil reimbursement, a remaining issue is what share of provider costs should be covered by state funds. From the perspective of state policymakers, the current share of costs covered may be viewed as appropriate, though our model-based estimates suggest that providers are left with having to cover up to half of the total CERDEP costs from other sources. As public entities, we might expect school districts to have access most readily to other public funds such as district general funds. This may justify reimbursing a smaller share of CERDEP costs for public school providers relative to private center-based providers, for whom alternative funds are less likely to be available. Indeed, given the present reimbursement gap under CERDEP, private center-based providers must, by necessity, pay lower salaries and provide fewer benefits compared with school district providers in order to break even.

As indicated in the last column of Table S.4, we also reviewed whether other state-funded 4K policies address how much of the cost of the program should be covered by the state, versus the provider or other funds. Four of the states we reviewed—Alabama, Mississippi, Tennessee, and Virginia—have explicit policies that require a contribution of local funds to supplement the state reimbursement rates. As such, the state reimbursement rate is not intended to cover the full cost of the program. Notably, there is wide variation in the per pupil reimbursement rates among these states, ranging from \$2,150 per pupil in Mississippi to \$6,125 in Virginia. The range of reimbursement rates among states that are not explicit about whether the state rate is designed to cover the full cost of the program is similar: \$2,437 in Florida to \$5,850 in North Carolina. While this illustrative group of ten states (including South Carolina) is not inclusive of all states, we do not observe a clear pattern of higher reimbursement rates in states with no explicit expectation of cost-sharing between the states, the providers, and other sources of funds; indeed, the ranges nearly overlap. Consistent with our findings in South Carolina, this may suggest that despite the lack of an explicit cost-sharing mechanism, there is an implicit assumption in these states that the reimbursement rate will not cover the full cost of the program.

Considering the revenue side of the cost-versus-reimbursement equation, the state share of CERDEP costs may be determined by whether there are other sources of revenue, public or private, to fill the gap, as suggested by the criteria above. For example, CERDEP reimbursement would not include the per pupil cost of meals if providers are eligible for reimbursement of food costs under the CACFP. Providers that cannot be reimbursed by CACFP would receive the meal component of the CERDEP reimbursement schedule. If the CACFP per-pupil reimbursement rate is determined to be too low, the gap could be filled by CERDEP funds. Access to federal Title I funds provides another interesting example of a funding source for 4K programs offered by public schools. Several of the illustrative districts apply Title I funds to cover a portion of the

costs of CERDEP. If full cost reimbursement became available for school districts, it would be important to consider whether a maintenance-of-effort (MOE) requirement should be in place to ensure that district providers sustain funding from other public sources under the new reimbursement approach. Otherwise, other funding sources may be supplanted by CERDEP funds.

On the cost side, whether a cost component should be covered could vary by whether the costs are deemed essential to achieving high quality, or are optional features with no incremental benefit in terms of program impact. Exclusion of certain expenditures from CERDEP reimbursement would require a solid understanding of CERDEP features and which of those have evidence to support their implementation. Examples include higher expenditures on enrichment activities, such as extra field trips, beyond a specified threshold, or the use of a high-cost professional development model that has not been shown to be effective.

Addressing the Compensation Differential for Public Versus Private Providers

One other key policy consideration is whether the CERDEP reimbursement mechanism would institutionalize the substantial differences in compensation between public schools and private center-based providers documented in this study and elsewhere. In recent years, as a growing share of preK slots are delivered through public schools, there has been growing attention placed on the need to achieve salary parity between preK teachers in public schools versus private centers and how to achieve that goal. For example, just as public schools are required to follow a minimum salary schedule, First Steps could require that private center-based CERDEP providers adhere to the same (or modified) salary schedule for their lead classroom teachers. A higher CERDEP reimbursement would then be associated with adhering to the salary schedule. This approach ensures that the higher reimbursement to providers results in higher compensation for the program staff.

Of course, achieving compensation parity for private providers would result in an increase in the per-pupil cost of CERDEP relative to the status quo, and thus increased state funding if enrollment is to remain the same or increase. However, there would be a host of expected offsetting benefits from achieving compensation parity, such as lower rates of staff turnover (and the accompanying increase in program quality) and a reduced reliance on the part of center-based staff on social safety net programs such as Medicaid and SNAP (Supplemental Nutrition Assistance Program).

At the same time, if compensation parity is addressed for 4K teachers in private programs but not for teachers in the same program in rooms with younger children (e.g., infants, toddlers, 3K), private providers may find that the within-site disparities in compensation for similarly qualified staff would create new issues in terms of staff performance, satisfaction, and retention. Thus, addressing the issue of compensation parity must account for the disparities between public and private programs, as well as the differences across staff within private settings based on the ages of the children they serve.

Addressing the Alignment in Reimbursement Rates Across Publicly Subsidized Programs

CERDEP operates along with other programs that subsidize the cost of 4K in both public and private settings. Where providers may simultaneously participate in more than one program, as is the case with CERDEP and SC Vouchers in private centers, one issue is whether the reimbursement rates across programs are similar. If reimbursement rates are not aligned, it may provide an incentive for providers to shift toward serving children in the program with the higher reimbursement rate, all else being equal.

At present, SC Voucher rates for full-day 4K vary by the urban-rural status of the provider and the provider's ABC Quality rating in South Carolina's quality rating and improvement system (QRIS). As of the 2017–2018 program year, the fixed CERDEP per-pupil reimbursement rate, on an hourly basis, would have been higher than the SC Voucher hourly reimbursement rate for all provider types. All five of the illustrative center-based providers that we interviewed also serve children receiving subsidies through SC Vouchers. Thus, for these providers and others like them, they may consider the reimbursement rates in the two programs as they enroll four-year-olds in their program. Given the relatively modest difference as of 2017–2018 (a minimum of about \$328 per child on an annual basis), the incentive to serve children eligible for CERDEP over those who qualify for SC Vouchers may not be very salient from the providers' perspective. However, if CERDEP rates are raised in the future, in recognition of the need to cover a larger share of providers' costs, the gap between CERDEP and SC Voucher reimbursement rates will become even larger and potentially more relevant for provider decisionmaking, especially for providers with lower quality ratings and in rural areas where SC Voucher reimbursements are lower.

Recommendations

This discussion has raised a number of policy issues regarding reimbursement of per-pupil costs for CERDEP providers. Many of these issues inherently involve tradeoffs that must be considered as part of a policymaking process. We therefore recommend a series of action steps for CERDEP stakeholders in South Carolina to take in support of a deliberate process to determine the potential costs and benefits of modifying the current CERDEP reimbursement mechanism.

Recommendation 1. Convene CERDEP stakeholders to recognize the variation in CERDEP costs and identify options for an adequate and equitable reimbursement policy.

The SCDE and First Steps should hold one or more convenings with all CERDEP stakeholders—public and private providers, the Education Oversight Committee (EOC), and other relevant parties—to recognize the considerable variation in the estimated total per-pupil cost of delivering CERDEP and the potential strategies for instituting a reimbursement policy that incentivizes quality and ensures an adequate and more equitable reimbursement of provider costs. The discussions should focus on the policy considerations referenced in the last section,

such as which sources of cost variation should be incorporated in the reimbursement schedule, what the expectations are for the state’s share of CERDEP costs and how providers will fill any gap, and whether there is support for moving toward compensation parity for CERDEP teachers in public and private settings.

Recommendation 2. Conduct an analysis of the effects of changes in the reimbursement mechanism on the funding required with no change in enrollment.

Guided by the discussions from the first recommendation, EOC should undertake an analysis of the implications of changes in the reimbursement mechanism for state funding of CERDEP with no change in enrollment. If a more-complex reimbursement approach is required, consider options to minimize administrative complexity, such as the use of existing formulas for K–12 funding to adjust for geographic differences in prices. Direct contracts with providers should be considered, as well. Similar to the approach taken in the National Academies report on *Transforming of the Financing of Early Care and Education*, it may be most feasible to phase in a new reimbursement structure over multiple years or gradually across districts, given the increase in funding that would be likely be required.

Recommendation 3. Provide technical assistance to CERDEP providers to ensure they access other sources of funding to cover their costs.

To the extent that private providers, in particular, will be expected to cover a portion of their costs from other public or private sources, First Steps should offer technical assistance to providers to ensure those funds are accessed to the maximum extent possible. For example, our set of illustrative providers suggests that some private centers may not access all sources of reimbursement, such as CACFP, for which they qualify. They also may not always fully claim all available CERDEP reimbursement (e.g., extended day or summer). Technical assistance would be a valuable resource for private centers (and perhaps school districts) to support the financial viability of CERDEP providers and stable participation in the program. Together, SCDE and First Steps could collaborate on an integrated plan for providing technical assistance and consistent implementation of the support for both public and private CERDEP providers.

Recommendation 4. Collect information on provider costs and refine model-based cost estimates to support the redesign of reimbursement policy.

Drawing on in-house capacity or external expertise, SCDE, First Steps, and EOC should continue to collect information on provider costs and refine model-based cost estimates as reimbursement policies are redesigned. The validity of any reimbursement mechanism depends on the extent to which it is grounded in real-world information about how providers implement the program and the associated cost structure. An evidenced-based approach will encourage buy-in on the part of CERDEP providers and other stakeholders, as well as support from families with children and the public more generally. Likewise, information collected from providers should be periodically updated to account for changes in program delivery and the associated implications for costs.

Recommendation 5. Review alignment between CERDEP’s reimbursement rates and those for other publicly funded early childhood programs in the state.

SCDE, First Steps, EOC and other state leaders should review the reimbursement rates for CERDEP and compare them with those of the other publicly funded early childhood programs in South Carolina that apply to 4K. This comparison is particularly relevant for private center-based CERDEP providers, as they also qualify to serve four-year-old children eligible for SC Vouchers. The review would determine the consequences of any current differences in the reimbursement rates across provider types, and assess the potential consequences in terms of participation in the subsidized program. If changes are made in the future to the reimbursement rates for CERDEP, the consequences for the difference in the reimbursement rates with SC Vouchers or any other relevant subsidized 4K program should be taken into account.

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Abbreviations

3K	state-funded three-year-old prekindergarten
4K	state-funded full-day four-year-old prekindergarten
ASQ	Ages and Stages Questionnaire
BLS	U.S. Bureau of Labor Statistics
CACFP	Child and Adult Care Food Program
CCDF	Child Care and Development Fund
CDA	Child Development Associate (credential)
CDEPP	Child Development Education Pilot Program
CERDEP	Early Reading Development and Education Program
CPI	Consumer Price Index
ECE	early care and education
EOC	Education Oversight Committee
EIA	Education Improvement Act
FTE	full-time equivalent
First Steps	South Carolina First Steps to School Readiness
MOE	maintenance-of-effort
NAEYC	National Association for the Education of Young Children
NASEM	National Academies of Sciences, Engineering, and Medicine
NIEER	National Institute for Early Education Research
OELL	South Carolina Department of Education Office of Early Learning and Literacy
PCQC	Provider Cost of Quality Calculator
preK	prekindergarten, more generally, for three- and four-year old children
QRIS	quality rating and improvement system
SCDE	South Carolina Department of Education
SC-ELS	South Carolina Early Learning Standards

SC Voucher	South Carolina Voucher program
USDA	U.S. Department of Agriculture
VPI	Virginia Preschool Initiative

1. Introduction

The South Carolina Early Reading Development and Education Program (CERDEP) is a state-funded full-day four-year-old prekindergarten (4K) program for low-income children at risk of not being ready to start kindergarten (South Carolina Department of Education, 2017). CERDEP began in the 2006–2007 school year as a pilot program, in response to a court decision concerning the equity of the state school funding formula. The program is implemented using a mixed-delivery system, with both public schools and licensed private center-based providers able to serve eligible children. In the 2017–2018 school year, the focus of the report, CERDEP served approximately 11,700 children, or about 33 percent of low-income four-year-old children in the state.

As South Carolina and other states have established state-funded prekindergarten (preK)² programs, a key policy decision is how much to reimburse providers for the cost of providing the program. According to the National Institute for Early Education Research (NIEER), in the 2016–2017 school year, states spent an average of approximately \$5,000 per pupil on state-funded preK programs. However, there is wide variation in spending across states, with at least one state (New Jersey) spending nearly \$12,000 per pupil, and other states spending less than \$3,000 per pupil (Friedman-Krauss et al., 2018). Variation in state spending may capture true differences in the cost of preK programs based on program requirements and other factors, or it may reflect differences in the extent to which state funding covers the full cost of providing a 4K program. True cost differences may arise, for example, from differences in program delivery and structure (e.g., mixed delivery or not, part- versus full-day programs, the length of the program year), requirements for teacher qualifications and associated compensation, the population served and hence any additional services provided to account for higher needs, and differences in the cost of living across states. But states vary as well, in the extent to which local funds on the part of school districts or private providers are expected to contribute to the cost of providing preK programming.

In the 2017–2018 school year, CERDEP providers were reimbursed \$4,422 per student, slightly under the national average for per-pupil spending on state-funded preK programs. All CERDEP providers were reimbursed the same amount per pupil, regardless of provider type or geographic location in the state. Some states follow this same model of a single reimbursement rate, while others have varying rates depending on the provider circumstances. For example, per-pupil state funding for Georgia’s state-funded preK program, the Georgia Preschool Program, varies by a number of factors, including provider type (private or public), program geographic area, and teacher qualifications.

² We use prekindergarten, or preK, to refer generally to early education programs of various kinds (e.g., state or federally funded programs or private pay programs) for three- and four-year old children. We use the term 4K to refer exclusively to preK programs for four-year-olds, and 3K to refer to those for three-year-olds.

A recent report from the National Academies of Sciences, Engineering, and Medicine (NASEM) suggests that the financing mechanism (e.g., reimbursement rates) for many preK and other early care and education (ECE) programs limit providers' ability to create supportive learning environments for participating children and families (NASEM, 2018). When program reimbursement rates (or the amount states reimburse providers for serving children) are not sufficient for covering program costs, providers may not be able to deliver high-quality services in the long run, with consequences for the stability and sustainability of the statewide program (Barnett and Robin, 2006; NASEM, 2018). The full cost of preK programs can be challenging and expensive to estimate, especially because information on providers' operating costs is not routinely collected in administrative data systems, and primary data collection is expensive (Davis et al., 2017).

In this report, we focus on estimating the total cost for CERDEP providers in the public and private sectors to deliver services consistent with the program requirements. To assess total cost, we include both direct classroom-based resources required to implement the CERDEP model, and indirect resources that support program delivery. More specifically, we apply rigorous methods to address the following study questions:

- What are the “ingredients,” in terms of personnel, facilities, educational materials, and other supplies, required to deliver CERDEP in public and private settings? What are the sources of potential variation in program costs?
- What is the estimated per-pupil cost of CERDEP? Does the per-pupil cost vary by key programmatic features, such as public versus private settings, teacher qualifications, student enrollment, or geographic area?
- How does the per-pupil cost compare to the current per-pupil reimbursement rate for CERDEP providers?

Documenting program costs is necessary for education leaders in South Carolina and across the nation to understand the resources required for delivering a high-quality preK program and to determine whether current reimbursement rates are adequate for supporting the delivery of high-quality programs. In particular, the first question is important for documenting the complete set of resources required to implement CERDEP, a fundamental first step toward understanding program costs. With that foundation, it is possible to then estimate CERDEP costs for specific providers based on their expenditures for CERDEP or for provider types based on a cost model (where assumptions are made about provider circumstances, the resources required, and the price of those resources; sometimes also called a cost-estimation model or cost calculator). Based on either data from specific providers or from a cost model, it is then possible to compare program expenditures with the per pupil reimbursement rate to determine if the state funding is adequate to cover the program costs.

Approach and Limitations

To address our study questions, we use two complementary approaches: (1) collecting information on CERDEP expenditures from a small number of illustrative public and private providers; and (2) developing a cost model, informed by the providers examined in the first approach, to estimate the CERDEP per-pupil cost under baseline assumptions and the variation in cost per pupil under alternative assumptions (e.g., program scale, local price differences, teacher qualifications and compensation, provision of transportation) consistent with the CERDEP requirements. While either approach could be used in isolation, by combining the two methods, we have a stronger foundation for understanding CERDEP costs and identifying policy implications.

The first analytic approach provides us with in-depth information from ten CERDEP providers across the state regarding the resources required for program implementation (our first study question), as well as illustrative estimates of program cost per pupil served (our second question), and whether CERDEP reimbursement was sufficient to cover total costs (our third question). Resource and time limitations precluded us from collecting such cost information from a larger representative sample of providers in the state, which would have allowed us to examine the sources of cost variation. Nevertheless, the small number of illustrative providers is especially useful for understand program cost structure, our first question about the required CERDEP ingredients, which then informs the model-based estimates that comprise our second strategy.

The second model-based approach has the advantage of providing a standardized way to compare per-pupil cost under a set of baseline assumptions and then under alternative scenarios where we vary one cost parameter at a time, holding other parameters constant. This approach then is particularly relevant for addressing the second and third study questions in a structured way, beyond what we might learn from a sample of providers. The model serves to illustrate major cost drivers, as well as how much of the total per pupil costs are covered by the CERDEP reimbursement mechanism for providers in different contexts.³ By tailoring the cost model to reflect the information we gathered from the ten public and private providers, the cost model reflects real-world information that is tailored to the CERDEP context, rather than using an off-the-shelf tool.

Our overall approach does have several limitations that are important to understand. First, given the small number of providers for which we gathered expenditure data, we stress that we are not able to report an average statewide total per-pupil cost for CERDEP. We interviewed just five private providers (about 3 percent of participating providers) and five school districts (about 8 percent of participating districts). While these programs were purposefully selected to

³ Such a model can also provide the basis for setting reimbursement rates that account for variation in provider costs that are expected to arise because of variation in provider cost components (e.g., the lead teacher qualifications and compensation, whether rent is paid, whether transportation services are provided) and other factors such as local prices.

represent different characteristics of CERDEP providers (e.g., both public and private providers of varying sizes in different parts of the state), the sample is too small to be representative. We use these providers to understand the cost components for CERDEP providers and to account for these cost elements in the model-based estimates. If there are cost elements associated with CERDEP delivery not reflected in the expenditures for the 10 providers, we may omit some costs. However, we also rely on well-established cost calculators developed for modeling the cost of 4K programs, which ensures that we are likely to capture the most important cost components.

For the provider-based cost estimates, we do rely on provider self-reports of expenditure details for their most recent completed fiscal year. Further, we require that providers identify the costs that apply just to their CERDEP classrooms, which is typically a subset of the children served in public school districts or private centers. Providers vary in the extent to which expenditures are tracked to the classroom level, as well as the specificity of their expenditures more generally. Thus, there is likely to be some measurement error in the provider-based estimates of per-pupil cost. For this reason, small differences in per-pupil costs across providers or for specific cost components should be interpreted with caution. In the case of the model-based estimates of CERDEP costs, we must make assumptions about program structure (e.g., program size, the number of classrooms, and children per classroom), the associated resource requirements given the program structure, and the corresponding prices for those resources (e.g., staff salaries, occupancy costs). Our assumptions are informed by the information from the ten providers and other 4K cost models. Nevertheless, varying our key assumptions may produce somewhat different estimates of cost.

We also note that our study is an analysis of the total cost to implement CERDEP under current program requirements. We do not assess how costs might vary under alternative program features (e.g., a higher class size or staff-child ratio). We are also not able to consider whether the program, as delivered, is achieving the desired outcomes or whether the resources spent on the program generate a positive return on investment. As such, this analysis does not address fundamental questions regarding the efficacy of CERDEP, its value to the state, and whether it should continue to be funded. Actions by the state legislature since the program's inception suggest there is general support for the program. For example, as described in more detail later in this chapter, the state has expanded access to the program since the 2006–2007 school year, making more districts eligible to establish CERDEP classrooms. At the same time, the cost analyses we undertake could provide a foundation for future analyses of the potential economic returns for CERDEP, based on expected or verified effects of participating in CERDEP on school readiness and other short- and longer-term outcomes.

To set the stage for the remainder of the report, the next section of this introductory chapter provides important background information on CERDEP.⁴ We also provide a brief review of prior research on the costs of preK programs and illustrate the approach that other U.S. states

⁴ For a complete review of the program history, features, and requirements, see Appendix A.

have adopted for reimbursing providers under their state-funded full-day 4K programs. We conclude the chapter with a roadmap for the remainder of the report.

Background on South Carolina CERDEP⁵

CERDEP began as the Child Development Education Pilot Program (CDEPP), a state funded early childhood education program in low-income districts in the state. The pilot program was founded in 2006 in response to a court ruling in a decades-long legal challenge to South Carolina’s public school funding formula. CDEPP was created to remedy the lack of funding for early childhood education in the state’s poorest districts. CDEPP was signed into state law as a permanent program in 2014 (South Carolina General Assembly, 2014) and renamed CERDEP. By law, the program must serve children from low-income families in the states’ poorest districts, and focus on reading and school readiness (South Carolina Department of Education, 2018c).

CERDEP is implemented using a mixed-delivery system, with both public school districts and private center-based providers able to serve eligible children. Oversight of the public school district-based programs is provided by the South Carolina Department of Education (SCDE), while South Carolina First Steps to School Readiness (First Steps)—the statewide public-private partnership to increase school readiness—oversees implementation in private providers. To be eligible to implement CERDEP, districts must have a score of 70 percent or higher on the state poverty index.⁶ These CERDEP-eligible districts may opt in or out of establishing CERDEP classrooms. Private providers may be located anywhere in the state, including in districts that do not meet the 70 percent poverty threshold. All children served by the program in either public or private settings must meet the child and family criteria described below.

In Table 1.1, we present a description of CERDEP’s key characteristics, including child and family eligibility criteria and major program requirements. Here we focus on key required features that are associated with preK program quality, many of which also have implications for program costs. (See Appendix A for a complete description of CERDEP’s features.) In particular, the National Institute for Early Education Research (NIEER) has developed a set of quality indicators (or benchmarks) for state preK programs. In the 2017 State Preschool Yearbook, NIEER revised and released ten new benchmarks for quality, including curriculum supports and staff professional development requirements (Friedman-Krauss et al., 2018).

⁵ This section draws heavily from the following: Friedman-Krauss et al. (2018), South Carolina Education Oversight Committee (2018), South Carolina Education Oversight Committee (2017); South Carolina Department of Education (2018a, 2018b), South Carolina First Steps (2018a, 2018b).

⁶ The poverty index is determined by the state’s General Assembly and is calculated based on the percentage of students and families in a district enrolled in Medicaid, Temporary Assistance for Needy Families, the Supplemental Nutrition Assistance Program, and Department of Social Services Foster Care.

Table 1.1. CERDEP Features in Private and Public Providers, and corresponding NIEER Quality Benchmarks

Program Feature	CERDEP Requirements	Applicable (New) NIEER Standard	Meets Standard ^a
Child/family eligibility	Child must be 4 by Sept 1 and family must have (a) income at or below 185 percent of the federal poverty guidelines or (b) be Medicaid eligible	None	–
Licensing	Must be licensed by the South Carolina Department of Social Services	None	–
Service options	<ul style="list-style-type: none"> Traditional year: 180 days; 6.5 hours/day Extended day: 180 days; up to 8.5 hours/day Extended year: up to 220 days; 6.5–8.5 hours/day Summer: up to 220 days; 180 days at 6.5–8.5 hours and 40 days of summer at 8.5 hours 	None	–
Maximum class size and staff-child ratio	20 children 1:10 staff-child ratio	7 / 8. Maximum class size and staff-child ratio	Yes
Early learning standards	<i>South Carolina Early Learning Standards</i> guide children's learning and development	1. Early learning and development standards	Yes
Curriculum	<ul style="list-style-type: none"> Big Day in Pre-K (public only) Creative Curriculum High Scope InvestiGator Club (public only)^b Montessori World of Wonders (public only) 	2. Curriculum supports	Yes
Lead teacher degree	<u>Public:</u> Bachelor's degree <u>Private:</u> Associate degree (with documentation of working toward a bachelor's)	3. Teacher degree	No
Lead teacher specialization in early childhood	<u>Public:</u> Teaching certificate in early childhood <u>Private:</u> Associate degree in early childhood, a CDA, or other specialized ECE training	4. Teacher specialized training	Yes
Instructional assistant degree	High school degree	5. Assistant teacher degree	No
Kindergarten readiness assessments	All children must be assessed at the start and end of the year by an approved reading assessment: <ul style="list-style-type: none"> Individual Growth & Development Indicators Early Literacy (public only) PALS- Pre-K (public only) Teaching Strategies GOLD 	None	–
Screenings and referrals	No requirements; health and developmental screenings recommended	9. Screenings and referrals	No
Teacher PD	15 hours of PD for teachers	6. Staff PD	Yes
Monitoring/CQI system	Regular monitoring and structured classroom observations	10. CQI system	Yes

NOTES: Abbreviations: CQI = continuous quality improvement; PD = professional development.

a As determined by NIEER (Friedman-Krauss et al., 2018).

b Curriculum approved for the 2018–19 school year only.

SOURCES: Friedman-Krauss et al.(2018), South Carolina Education Oversight Committee (2017, 2018), South Carolina Department of Education (2018a, 2018b), South Carolina First Steps (2018a, 2018b).

In the final two columns of Table 1.1, we indicate, where relevant, the corresponding NIEER standard, and whether the CERDEP features meet the applicable benchmark (as determined by NIEER’s most recent analysis of information from the 2016–2017 school year). As of 2016–2017, CERDEP met seven of ten quality metrics. In comparison to other states, meeting seven benchmarks puts South Carolina in the middle to the high end of the distribution in the 2016–17 school year (the most recent with comprehensive data). Only three states—Michigan, Alabama and Rhode Island—meet all ten, while five states met nine. Ten states met fewer than half of the benchmarks. There is an extensive body of research literature evaluating how to define and measure quality in preK and childcare settings, and whether these quality metrics are related to child outcomes.⁷ While a literature review on preK quality or the features of the CERDEP program is outside the scope of this report, the NIEER standards provide useful evidence-informed benchmarks for quality, because all the standards were developed by identifying the common characteristics of effective, research-based preK programs (Friedman-Krauss et al., 2018).⁸

To enroll in CERDEP, children living within CERDEP-eligible districts must have reached age four on or before September 1 and meet one of the following criteria: (a) have family income at or below 185 percent of the federal poverty guidelines or (b) be eligible for Medicaid. Families can choose to apply for a CERDEP slot in either a public school district or a private provider. In the 2017–2018 school year, 64 districts were CERDEP-eligible and 61 opted into the program—approximately 74 percent of the state’s 82 total districts. Additionally, 197 private providers across the state implemented CERDEP in 2017–2018. In this school year, CERDEP served a total of 11,735 children served; the large majority of children—9,789 or about 83 percent—attended a CERDEP classroom in a public school district, with less than 2,000 children attending such classrooms in private providers. Based on recent state estimates, the 11,700 children served by CERDEP represented about 33 percent of all low-income children in the state at the time.⁹

All programs must operate for at least 180 school days, five days a week, with at least 6.5 hours of instruction per day—or what the program refers to as the *traditional school year* service option. In the 2017–2018 school year, the state’s General Assembly made additional funds available to expand CERDEP offerings. CERDEP providers had the option of three different expansions which included: *extended day*—180 days per year and up to 8.5 hours of instruction per day; *extended year*—up to 220 days per year and 6.5–8.5 hours of instruction per day; and *summer*—up to 220 days per year total with 180 days of 6.5–8.5 hours during the school year

⁷ See for example: Burchinal et al., 2010; National Institute for Child Health and Development Early Child Care Research Network, 2002, 2003; Keys et al., 2003; Zaslow et al., 2011.

⁸ For a more detailed description of CERDEP’s features in relationship to NIEER’s standards, see EOC, 2017, 2018. In addition, RAND’s forthcoming companion report on CERDEP will explore aspects of the CERDEP, including the teacher education requirement and the teacher professional development opportunities.

⁹ Based on estimates of low-income children in the state from EOC (2018).

and 40 days of a summer program with up to 8.5 hours of instruction per day.¹⁰ In 2017–2018, the majority of districts and private providers (about 60 percent each) opted into the summer program option (see Appendix A for a complete breakdown of the program options). As discussed in more detail in later sections, each service option is associated with a different per-pupil reimbursement rate. For all service options, the classroom size is capped at 20, and the teacher-child ratio within a classroom cannot exceed 1:10. All CERDEP providers are required to purchase and use one of the approved, research-based program curricula listed in Table 1.1. In addition, educators must follow the South Carolina Early Learning Standards.

The requirements for lead teacher qualifications differ across the public and private settings. In the school districts, all lead teachers are required to have a bachelor's degree and a South Carolina teaching certification in early childhood education. In the private settings, teachers with bachelor's degrees are preferred, but lead teachers are only required to have a two-year college degree in early childhood education, or a two-year college degree in another field with additional early childhood experience (such as having a CDA credential). All lead teachers without a 4-year degree must show evidence that they are enrolled in four-year teacher education program with an emphasis on early childhood education. Once hired, CERDEP requires that all lead teachers complete 15 hours of professional development per year.

CERDEP Reimbursement Mechanisms

The SCDE and First Steps are responsible for reimbursing the CERDEP districts and private providers with state funds to pay for the program. The reimbursement structure has three main components: 1) reimbursement for instruction, 2) reimbursement for transportation, 3) and funds for materials and equipment for new classrooms. The state General Assembly sets the reimbursement rates depending on available state funding. The rates are the same across all providers in public and private settings and across all state regions. In Table 1.2 we detail the reimbursements for these components starting with the first year of the program through the 2018–19 school year.

At the program's inception in the 2006–07 school year, providers were reimbursed \$3,077 per pupil. This starting rate was based, in part, on initial estimates produced by the EOC on the per-pupil cost for a CERDEP classroom in either a public or private setting (South Carolina Education Oversight Committee, 2006). The estimated costs per pupil were \$3,647 for a CERDEP classroom in a public school with a certified teacher, and \$2,693 per pupil for a certified teacher in a private setting. The estimates were based on median salary information for teachers and teaching assistants in South Carolina, in both public schools and private centers at

¹⁰ First Steps and SCDE defined the extended year and summer options differently. As defined by SCDE, the public districts had the option of between 6.5–8.5 hours of instruction per day for extended year, while the private providers who implemented the extended-year option capped their hours at 6.5, as defined by First Steps. Similarly, for the summer option, public schools had the option of between 6.5–8.5 hours of instruction for the 180 days of the school year, and 8.5 hours of instruction for the 40 day summer program. The private providers who implemented the summer option implemented only 6.5 hours during the school year and 8.5 hours per day of summer instruction.

Table 1.2. CERDEP Reimbursement Rates from 2006–2007 to 2018–2019

School Year	Instruction (in nominal dollars)	Transportation (in nominal dollars)*	Materials and Equipment for New Classrooms
2006–2007	3,077.00	185.00	Up to \$10,000 per classroom
2007–2008	3,931.00	550.00	"
2008–2009	4,093.00	550.00	"
2009–2010	4,093.00	550.00	\$1,000 per pupil for providers enrolling 1 to 6 children; support not to exceed \$10,000 for providers enrolling 7 or more children
2010–2011	4,218.00	550.00	"
2011–2012	4,218.00	550.00	"
2012–2013	4,218.00	550.00	"
2013–2014	4,218.00	550.00	"
2015–2016	4,218.00	550.00	"
2016–2017	4,323.00	550.00	"
2017–2018	4,422.00	561.63	"
2018–2019	4,510.00	574.00	"

* With the exception of 2006–07 when both private and public providers could claim transportation costs, the transportation reimbursement rate applies to private providers only.

NOTE: " = no change from previous year.

SOURCE: Private communication from EOC.

the time. The assumed fringe benefit rates were 28 percent and 20 percent in public and private settings, respectively. Classroom instructional materials were estimated at \$60 per pupil and transportation services at \$185 per pupil.

The reimbursement rate saw its largest increase—approximately \$854, or 28 percent—after that first year, bringing the rate to \$3,931 in 2007–2008. By 2017–2018 the rate had increased to \$4,422 with a final boost to \$4,510 in 2018–2019. Overall, the reimbursement rate for instruction has increased \$1,433, or about 47 percent, since the program began. This increase outpaces general inflation.¹¹

The rates cited above all pertain to the traditional school year CERDEP option (i.e., 180 days of instruction at 6.5 hours per day). As described above, in the 2017–2018 academic year, the General Assembly made funds available for a CERDEP expansion of program options. Providers could pick from three new options: extended day, extended year, or summer. To implement each of the service options, programs received additional funds beyond the base \$4,422 per pupil; we present these rates in In Table 1.3. These rates appear to be calculated as a portion of the base rate. For example, assuming a 180-day school year and 6.5 hours of instruction per day, the base reimbursement rate translates into an hourly rate of \$3.78. Thus, for the extended-day option, programs received an additional \$3.78 per hour per pupil for the extension of the program from

¹¹ The inflation rate from 2006 to 2018, based on the Consumer Price Index (CPI), was about 24.4 percent according to the Bureau of Labor Statistics (BLS) inflation calculator. The CPI is a general measure of price trends. As such, it is not intended to capture price changes in specific sectors such as education or ECE. Thus, whether CERDEP reimbursements have kept pace with the cost of providing the program would require the use of a price index that captures price changes for the personnel and other resources required to implement the program.

Table 1.3. CERDEP Expansion Service Options Reimbursement Rates

Service Option	Additional Reimbursement Beyond Base Rate
Extended Day	\$3.78 per additional hour (up to 2 hours beyond 6.5)
Extended Year	\$24.56 (6.5 hours) or \$34.02 (8.5 hours) per additional day
Summer	\$34.02 (public) or \$32.13 (private) ^a per additional summer school day (up to 40 days, at 8.5 hours per day)

^a The difference in the additional per-day funding rate between public and private providers for the Summer options appears to be due to a calculation error in program documents. EOC confirmed in internal communication that reimbursement rates do not differ between public and private settings. SOURCE: South Carolina Department of Education (2018a) and South Carolina First Steps (2018a).

6.5 hours to up to 8.5 hours. The same logic was used to calculate the additional reimbursement for the extended year and summer options (i.e., \$4,422 annual reimbursement rate divided by 180 days equals \$24.56 per day).

With the exception of 2006–2007, the per-pupil transportation rate has been fairly constant over the years with a rate of \$561.63 per pupil in 2017–2018.¹² As of the 2007–2008 school year, only private providers are eligible to claim transportation costs; the districts are expected to absorb the transportation costs into the countywide school transportation budget. The last component of the reimbursement structure is the funds available to providers when they open new classes; in the 2017–2018 school year, programs could receive a max of \$10,000 total per classroom, depending on the additional CERDEP children to be served.

Early Childhood Landscape and other ECE Funding in South Carolina

CERDEP is not the only publicly funded ECE program in the state. In 1984, the Half Day Child Development Program was created as part of the Education Improvement Act (EIA). South Carolina districts not participating in CERDEP can use EIA funds to implement a part-day (at least 2.5 hours per day) preschool program for at-risk four-year-olds. Some districts use other funds to extend the program to full-day service. SCDE does not set a per-pupil reimbursement rate, but determines public school districts' funds for the program based on kindergarten enrollment and the district poverty index. Public schools also have access to federal funds to supplement their 4K programs, including Title I funds of the Elementary and Secondary Education Act (as amended by the Every Student Succeeds Act). Title 1 funds support local educational agencies and schools with high numbers or high percentages of children from low-income families. Districts can also use funds authorized by the Individuals with Disabilities Education Act to provide preK services for children with disabilities.

South Carolina also has a number of Head Start programs. Enrollment figures for the 2017–2018 school year indicate that over 13,000 children were served by Early Head Start or Head

¹² Based on the BLS inflation calculator, the CERDEP transportation reimbursement rate has not kept pace with inflation, having increased only four percent since the 2007–2008 school year. The same caveat applies that the Consumer Price Index captures general price trends which may differ for the transportation sector of interest here.

Start programs in South Carolina.¹³ Some of the private CERDEP providers also receive Early Head Start funding, Head Start funding, or some combination of the two, and operate multiple programs simultaneously.

The South Carolina Voucher program (SC Vouchers) is another mechanism to subsidize the cost of child care and early learning programs in private settings for low-income working parents with children up to age 12. The program, which reimburses child care providers for some or all of the cost of a child's tuition, is administered by the South Carolina Department of Social Services and funded by the federal Child Care and Development Fund (CCDF), which was reauthorized by the 2014 Child Care and Development Block Grant. Many of the private providers that administer CERDEP also accept SC Vouchers. As a point of comparison to CERDEP, the provider reimbursement rates for SC Vouchers vary by provider characteristics, including the provider type (e.g., licensed centers, family child care homes); providers' rating on the state's quality rating improvement system (QRIS), ABC Quality; geographic locale (urban versus rural settings), child age, and hours of care (full- or part-time).¹⁴ For example, the reimbursement rate that applied during the 2017–2018 federal fiscal year for three- to five-year-old children receiving full-time care (up to 10 hours per day) at an urban licensed center with the highest ABC Quality rating was a maximum of \$175 per week, the equivalent of \$35 per day or \$3.50 per hour assuming a 10-hour day.¹⁵ This is less, on an hourly basis, than the \$3.78 per hour reimbursement for CERDEP (see Table 1.3). Since the SC Vouchers payment rate is lower for four-year-olds in centers in rural areas or in centers with lower quality ratings, the reimbursement rate for CERDEP exceeds the equivalent hourly reimbursement for SC Vouchers under all circumstances. Over the course of a 180-day program for 6.5 hours per day, the gap is equivalent to a minimum of \$328 per child.

Finally, both public districts and private centers can apply to receive funds from the U.S. Department of Agriculture (USDA) Child and Adult Care Food Program (CACFP), a federal entitlement program, to reimburse the cost of food service for CERDEP and other preK programs.

¹³ Source: Unpublished data from the South Carolina Head Start Collaboration Office, received from the EOC via internal communication with the authors.

¹⁴ Reimbursement rates for SC Vouchers are based on periodic market surveys of the prices that providers charge for care of children of different ages and hours of service. Rates are based on the price level at the 75th percentile for ABC Quality level C providers and up to the 85th to 90th percentile for providers with the highest quality ratings (South Carolina Department of Social Services, 2018). It is important to recognize that the market-based survey captures the price that providers charge, which is not necessarily the same as the full cost to providers of providing the care (Davis et al., 2017).

¹⁵ Source: Unpublished data from EOC and the South Carolina Department of Social Services.

Reimbursement Mechanisms in Publicly-Funded Preschool Programs in Other States

To provide further context for the reimbursement policy for CERDEP 4K in South Carolina, we reviewed the reimbursement rates for nine neighboring state-funded 4K programs, namely:

- Alabama First Class Pre-K
- Florida Voluntary Prekindergarten Program
- Georgia Preschool Program
- Kentucky Preschool Program
- Mississippi Early Learning Collaborative
- North Carolina Pre-K Program
- Tennessee Voluntary Pre-K
- Virginia Preschool Initiative (VPI)
- West Virginia Universal Pre-K.

We display key characteristics of these programs and CERDEP in Table 1.4. As indicated, these programs are similar to CERDEP in terms of a number of characteristics that can drive program costs; for example, whether the program is targeted at certain populations (e.g. low-income families) or universal, the program's class size and teacher-child ratio, and the program's required teacher credentials. Like South Carolina, four of the other state-funded programs are targeted to low-income families and children with other risk factors, and all programs have a maximum class size of about 20 children, with staff-child ratios ranging from 1:9 to 1:11. Florida is the only other state that, like South Carolina for private providers, does not require all lead teachers to have a bachelor's degree. Using the NIEER benchmark standards as indicators of quality, there is wide variation among these programs. The Florida Voluntary Prekindergarten program meets just two benchmarks, while Alabama First Class Pre-K meets all ten.

In Table 1.5, we present detailed information about the per-pupil reimbursement policy in each state-funded 4K program, including the reimbursement mechanism for instruction, the factors tied to reimbursement, the maximum per-pupil reimbursement rate for a standard academic year, and other costs for which programs are reimbursed. We compiled this information from a review of publicly available documents. Note that comprehensive data on state reimbursement policies are not routinely collected or reported in many states. In multiple instances, current information was not available; we present information for the most recent year for which data were identified. Despite the lack of complete current information, the details on the other programs helps to situate South Carolina's reimbursement rate in the context of other neighboring states.

Table 1.4. Features of State-Funded 4K Academic-Year Programs in Selected States

State Program	4K Eligibility	Key Program Features		NIEER Standards Met
Alabama First Class Pre-K	All eligible	Class size:	20	10
		Teacher-child ratio:	1:10	
		Lead teacher:	BA	
		Assistant teacher:	CDA or 9 ECE/CD credits	
Florida Voluntary Prekindergarten Program	All eligible	Class size:	20	2
		Teacher-child ratio:	1:10	
		Lead teacher:	CDA or equivalent + training	
		Assistant teacher:	None	
Georgia Preschool Program	All eligible	Class size:	22	8
		Teacher-child ratio:	1:11	
		Lead teacher:	BA in ECE, CD, ECE SpEd	
		Assistant teacher:	CDA	
Kentucky Preschool Program	Targeted to children in low-income families (<160% FPL) or with other at-risk characteristics	Class size:	20	7
		Teacher-child ratio:	1:10	
		Lead Teacher:	BA in ECE, CD, ECE SpEd	
		Assistant Teacher:	HSD	
Mississippi Early Learning Collaborative	Some providers targeted to children in low-income families (eligible for Head Start)	Class size:	20	9
		Teacher-child ratio:	1:10	
		Lead Teacher:	BA in ECE, CD	
		Assistant Teacher:	AA in ECE, CD	
North Carolina Pre-K Program	Targeted to children in low-income families (< 75% of SMI) or with other at-risk characteristics	Class size:	1	8
		Teacher-child ratio:	1:9	
		Lead Teacher:	BA in ECE, CD	
		Assistant Teacher:	HSD	
South Carolina CERDEP	Targeted to children in districts with high poverty (70% or higher) and in low-income families (< 185% FPL) or with other at-risk characteristics	Class size:	20	7
		Teacher-child ratio:	1:10	
		Lead teacher (pub.):	BA in ECE	
		Lead teacher (priv.):	AA in ECE or CD, working toward BA	
		Assistant teacher:	HSD	
Tennessee Voluntary Pre-K	Targeted to children in low-income families (< 185% FPL) or with other at-risk characteristics	Class size:	20	5
		Teacher-child ratio:	1:10	
		Lead Teacher:	BA in ECE, CD, ECE SpEd	
		Assistant Teacher:	HSD	
Virginia Preschool Initiative (VPI)	Targeted to children in low-income families (< 200% FPL) or with other at-risk characteristics	Class size:	20	6
		Teacher-child ratio:	1:10	
		Lead Teacher:	BA in ECE, CD, CDA	
		Assistant Teacher:	CDA	
West Virginia Universal Pre-K	All eligible	Class size:	20	9
		Teacher-child ratio:	1:10	
		Lead Teacher:	BA in ECE, CD, ECE SpEd	
		Assistant Teacher:	HSD	

NOTES: All data pertains to the 2016–17 school year except Florida where the features are for the 2013–14 year. Abbreviations: AA = associate degree; BA = bachelor's degree; CD = child development; ECE = early childhood education; HSD = high school diploma; SpEd = special education.

SOURCES: Friedman-Krauss et al. (2018); Barnett and Kasmin (2016).

We show three different reimbursement mechanisms among these ten states according to Barnett and Kasmin (2016): (1) per-pupil discretionary grant—a designated per-pupil reimbursement rate determined by the legislature’s budgetary process, typically without reference to provider cost information; (2) per-pupil (discretionary) formula grant—similar to the first approach, but which uses a formula to adjust the grant for student or district needs; or (3) per-pupil school funding formula—the same approach typically used by states to determine state funds for K–12 education. South Carolina falls into the second category. As described earlier, all CERDEP providers in South Carolina are reimbursed the same amount per pupil for instruction, so there are no factors tied to the reimbursement rate. Kentucky and Tennessee’s reimbursement mechanisms are similar to South Carolina’s in that they both employ a per-pupil formula grant as well. However, unlike South Carolina, Kentucky makes additional per-pupil funding available for children with disabilities, while in Tennessee local districts are required to match the grant from the state to supplement funds for the program. Indeed, like four of the 4K program policies we reviewed, Tennessee’s policy is explicit: state funds are not intended to cover the full cost of instruction, and local matching or supplemental funds are necessary. In addition to local matching funds, states find alternative ways to supplement the state funding to cover the cost of their 4K program. For example, in 2016 the Mississippi Department of Education was awarded a \$6 million grant from a private foundation to improve the quality of early childhood education in the state. The grant was intended to support activities such as professional development for staff, program evaluation, and parent engagement (Mississippi Department of Education, 2016).

Unlike South Carolina, five of the states we reviewed vary the per-pupil reimbursement rate by program or child factors. In the state of Georgia, for example, the per-pupil reimbursement rate varies by teacher education, geographic area (metro or non-metro), public or private provider status, class size, and the number of days the program is offered. North Carolina also varies the per-pupil reimbursement rate based on whether providers are public or private.

South Carolina’s 2018–2019 per-pupil reimbursement rate, \$4,510, is in the middle of the distribution among the nine states. Mississippi has the lowest rate at \$2,150; however, local governments are required to match funds for the program; the state reimbursement is not intended to cover the full cost of the program. Florida’s rate is also comparatively low; notably, Florida is the only state (aside from South Carolina for private providers) that does not require teachers to have a bachelor’s degree, and its 4K program met the fewest NIEER quality benchmarks. Virginia had the highest per-pupil reimbursement rate at \$6,125. As for reimbursement for other program costs, South Carolina and a number of other states—specifically Alabama, Georgia, and North Carolina—provide additional funds for new classroom start-up. Some states also reimburse for transportation costs and provide additional funding for extended hours during the school year, summer programs, or both.

Table 1.5. Reimbursement Features of State-Funded 4K Programs in Selected States: Most Recent Academic Year Available

State Program (Year)	State Reimbursement Mechanism	Factors Tied to Reimbursement	Maximum Per-Pupil Reimbursement for Standard Academic Year School-Day Program	Other Reimbursements (Annual)
Alabama (2018–2019)	Per-pupil discretionary grant; expectation of local contribution to achieve quality	None	\$4,860	<ul style="list-style-type: none"> • Supplement for classrooms with other funding, up to \$2,250 per pupil • New classroom, up to \$2,640 per pupil
Florida (2014–2015)	Per-pupil discretionary grant	<ul style="list-style-type: none"> • District cost differential 	\$2,508	<ul style="list-style-type: none"> • Summer option
Georgia (2018–2019)	Per-pupil discretionary grant	<ul style="list-style-type: none"> • Lead teacher education • Metro vs. non-metro area • Public vs. private provider • Class size • Number of days offering services 	\$3,087 ^a \$3,229 ^b \$3,529 ^c	<ul style="list-style-type: none"> • Transportation, ~\$150 per pupil • New classroom • Sparsity allowance
Kentucky (2018–2019)	Per-pupil school funding formula	<ul style="list-style-type: none"> • Child disability status 	\$4,491	<ul style="list-style-type: none"> • Supplement for severe/multiple disabilities, \$2,143 per pupil
Mississippi (2017–2018)	Per-pupil discretionary grant; require 1:1 local match	None	\$2,150	<ul style="list-style-type: none"> • Part-day option, \$1,075 per pupil • Extended-day option
North Carolina (2017–2018)	Per-pupil discretionary grant; based on state contract with provider	<ul style="list-style-type: none"> • Lead teacher education/credential • Public vs. private provider 	\$4,257 ^d \$5,850 ^e	<ul style="list-style-type: none"> • Administration (~4%) • New classroom • Quality funds
South Carolina (2018–2019)	Per-pupil formula grant	None	\$4,510	<ul style="list-style-type: none"> • Transportation, \$574 per pupil (private only) • New classroom, up to \$500 per pupil • Extended-day and summer options
Tennessee (2016–2017)	Per-pupil formula grant; required local match based on school funding formula	None	\$5,874	<ul style="list-style-type: none"> •
Virginia (2016–2017)	Per pupil discretionary grant shared by state and local match (50% maximum) based on index of ability to pay	None	\$6,125	<ul style="list-style-type: none"> •
West Virginia (2015–2016)	Per pupil school funding formula	<ul style="list-style-type: none"> • Educator salaries 	\$5,007 (est.)	<ul style="list-style-type: none"> • Administration and other cost factors • Transportation • Quality improvements

^a Approximate rate for a public school program with a lead teacher with a bachelor's degree and full enrollment.

^b Approximate rate for a private program in a non-metro area with a lead teacher with a bachelor's degree and full enrollment.

^c Approximate rate for a private program regardless of teacher qualification.

^d Approximate rate for a public school program with a lead teacher with a bachelor's degree; monthly rate times 9 months.

^e Approximate rate for a private program with a lead teacher with a bachelor's degree and a birth-through-kindergarten (B-K) license; monthly rate times 9 months.

NOTES: See Table 1.4 for full program names. The standardized program is 5 to 6.5 hours per day for 180 days.

SOURCES: Barnett and Kasmin (2016); state 4K program websites and other materials documented in Appendix B.

Prior Research on the Cost of High-Quality PreK Programs

Analyses of the cost of preK programs aim to estimate the value of the direct and indirect resources required to deliver the program—both resources that require cash expenditures, as well as resources provided in-kind. The latter may include, for example, space that is donated or partially subsidized, as well as classroom supplies provided by families to supplement what the program can cover. The cost of facilities is often not captured in public school district-based programs because buildings are owned outright, or costs for utilities and maintenance are recorded as part of a school or district's overhead expenses. Other overhead expenditures for program administrators and support functions may also not be included when accounting for a preK program's costs. Notably, program costs are not necessarily equivalent to the fees that parents may be charged or the reimbursement rates for publicly funded programs. Capturing information on the costs to provide a preK program is more time consuming and therefore more expensive, compared with gathering data on the prices that providers charge. Thus, such information is typically not routinely collected.

Despite the challenges of measuring the cost of preK programs and other care and early learning programs serving children before kindergarten entry, a growing body of research now documents program costs for providers. Analyses of preK program costs across multiple studies consistently show that the one of the largest expenditure components is compensation (salaries and fringe benefits) for instructional personnel (Gault, Mitchell, and Williams, 2008; Caronongan et al., 2016). Consequently, key drivers of per-child preK program costs include the education level of the staff, the salary scale and generosity of the fringe benefit package, the teacher-child ratio in the preK classrooms, and program intensity (e.g., part- versus full-day programs, academic-year versus calendar-year programs). PreK teachers in public school programs typically receive higher compensation compared with teachers in private center- or home-based programs, although some publicly funded programs require private providers to compensate teachers on the same scale as their public school counterparts (Whitebook, McLean, and Austin, 2016). Syntheses across preK program cost studies indicate that per-child costs are also higher when programs provide ancillary services (e.g., the health services component in Head Start), but they may be lower in programs with higher enrollment because of economies of scale (Caronongan et al., 2016). Costs also vary with other program features such as program size (e.g., enrollment) and with the local area cost of living.

The total cost of ECE can also be based on estimates from cost models (Davis et al., 2017). Indeed, states are now encouraged as part of CCDF to supplement the information they collect

on provider fees with data on cost of care using cost models such as the Office of Child Care’s (undated) Provider Cost of Quality Calculator (PCQC) and other methods. The basic approach of a cost model is to assume a given program structure and set of features, determine the resources required to implement the ECE program with those features in a given time period (e.g., a fiscal year), and then price out the value of all required resources. The sum of the value of the resources required is the total cost for the accounting period. Total resources can be divided by the number of children served or child hours for those children to measure cost per pupil or cost per pupil hour.

For example, the NASEM report on *Transforming the Financing of Early Care and Education* (NASEM, 2018) estimated annual cost of full-time care at the national level, assuming high-quality program features, in center and home settings. In 2016 dollars, infant care was estimated at \$35,354 on an annual basis, toddler care at \$28,203, and preschool-age care at \$13,655. These estimates are based on program features consistent with an earlier NASEM report which recommended bachelor’s-level lead teachers for all child age groups, appropriate staff-child ratios, and adequate teacher compensation (NASEM, 2015). Given that more than half of the cost of high-quality ECE is in the form of classroom and program staff salaries and benefits, adequate compensation and ratios recommended by the National Association for the Education of Young Children (NAEYC) for accreditation will lead to considerably higher costs than what providers typically offer.

Roadmap for the Report

We proceed in the next two chapters to present our methods and findings from the two-pronged approach we take to examining per pupil costs of CERDEP: first the estimates based on information gathered from ten CERDEP providers and then the model-based estimates. The final chapter summarizes the key results from the study, identifies important policy implications, and provides recommendations informed by the cost analysis findings.

2. Provider-Based Information on CERDEP Costs

This chapter presents the results of our first approach to examining CERDEP costs based on illustrative estimates derived from information provided by the ten providers surveyed for this report. The results focus on the categories of expenditures required to implement CERDEP (e.g., personnel, facilities, materials and supplies) and optional features, such as transportation and extended-day or extended-year programming. The staffing models used by programs are also examined. Together, the provider-based information contributes to our understanding of the issues raised in our first study question regarding the ingredients needed to implement CERDEP; both those directly associated with instruction, as well as indirect resources. We also use the provider-based data to provide insight into our second and third questions by estimating total per-pupil cost for the ten providers and considering whether CERDEP reimbursement would be sufficient to cover those total costs. Ultimately, the illustrative providers serve to demonstrate important features of the cost structure for CERDEP and provide a foundation for the model-based estimates covered in the next chapter. Before presenting the findings, we first detail our approach to collecting and analyzing the information from the ten providers.

Approach

To better understand the cost structure for CERDEP delivery, we worked with EOC to identify five public school districts and five private center-based CERDEP providers from which we collected information about the program features and expenditures for the most recent fiscal year. We begin by describing the characteristics of the illustrative programs. We also discuss the information that we collected through our interviews and our approach to estimating CERDEP costs based on the expenditure data. The questionnaire instruments used for the provider interviews are provided in Appendix C.

Characteristics of the Public and Private Providers Interviewed

The ten CERDEP providers were purposively selected to capture variation in program setting (public schools and private centers), program scale of operations (i.e., enrollment), and region of the state. The programs are not intended to produce a representative sample but rather to provide variation that allow us to capture relevant features of CERDEP providers that affect their cost structure. Given the proprietary nature of the information from CERDEP providers, particularly the private centers, providers and districts are not identified by name, and results are presented in a way that precludes indirect identification.

Table 2.1 summarizes key characteristics of the five public school districts and five private providers we interviewed. The features are as of the 2017–2018 school year. The variation in scale is reflected in the indicators in panel (a). In particular, the five public school districts

Table 2.1. Features of 10 CERDEP Providers Interviewed, 2017–18 Academic Year

Indicator	School Districts (N = 5)	Private Centers (N = 5)
a. Enrollment and Facilities		
Ages served prior to K	3K (1), 4K (5)	Infants, toddlers, 3K, 4K
Number of CERDEP sites	1 to 6	1
Facility	School sites only (4), school sites and stand-alone centers (1)	Own building (3); church building (2)
Total site birth to 4K enrollment	–	100 to 150
Total site 4K enrollment	20 to 64	15 to 60
Total district 4K enrollment	Less than 60 to greater than 400	–
Total district K enrollment	Less than 150 to greater than 1,000	–
Total district enrollment	About 5,000 to greater than 10,000	–
b. Other Features		
Type of provider	Public school districts	Non-profit (4) and for profit (1)
ABC Quality rating	In ABC (1), Not applicable (4)	B (2), B+ (1), C (2)
Accredited	–	None
Head Start grantee	No	Yes (1), No (4)
Accept SC vouchers	–	Yes
Title I funding	Yes	–
Fiscal year	July 2017 to June 2018	January 2017 to December 2017

SOURCE: Public records and provider interviews.

NOTES: – = not applicable.

operated CERDEP in one to six sites in their districts, typically in elementary schools, although one district had CERDEP classrooms in stand-alone centers. One district had 3K (prekindergarten for three-year-olds) classrooms, in addition to their 4K CERDEP rooms. Total district 4K enrollment (CERDEP and other 4K) and kindergarten (K) enrollment ranged from the bottom quartile of districts in the state (a small rural district) to the top quartile (a large urban district), indicating that we captured both smaller and larger districts. Total enrollment across the districts ranged from about 5,000 students in the smaller districts to over 10,000 in the largest district. The private providers all served children from birth to kindergarten entry in single sites, either in their own building or a church building. Enrollment ranged from about 100 to 150 children in total and from 15 to 60 children in their 4K (CERDEP and other 4K) classrooms. Geographically, the ten providers are located in eight of the state's 46 counties, with 33 to 72 percent of each county's population in rural areas.

Panel (b) in Table 2.1 records other relevant features of the ten CERDEP providers surveyed, again illustrating both common elements as well as variation. In terms of quality indicators, public school districts are generally not expected to participate in the ABC Quality QRIS program. However, one district had an ABC rating for several sites. Some or all of the elementary schools with CERDEP classrooms in the five public school districts receive federal Title I funds, though Title I funds were not always applied to the school's preschool program.

Among the private centers, all but one were nonprofits. All had ABC Quality ratings which ranged from B to C. None were accredited by the National Association for the Education of Young Children (NAEYC), the main national accreditation organization for early childhood care and learning programs. In terms of other public funds, one private center was also an Early Head Start grantee and all private centers accept the SC Vouchers for subsidized care.

In terms of their finances, the public school districts all operate on a July to June fiscal year, whereas the private centers operate on a January to December fiscal year. Thus, in analyzing expenditure data, we will be referencing the period from July 2017 to June 2018 for the school districts and January to December 2017 for the private centers. Given the relatively low rate of current inflation, the six-month shift in the reference fiscal year for public versus private providers should not affect our ability to compare per-pupil CERDEP cost between public school districts and private centers.

Information Collected from Providers on Program Structure and Expenditures

We conducted telephone interviews with all but one of the CERDEP providers, following an interview protocol that differed somewhat between the school districts (where there were typically multiple sites) and private center-based providers (all with a single site). All ten providers who we selected and contacted agreed to participate in the interview. In the case of the school districts, we spoke with one or more district-level staff knowledgeable about the CERDEP sites they operate, often the director of early childhood programs. One school district opted out of the phone interview, and instead filled out the interview form and sent their information electronically. The interviews with center-based providers were conducted with the director of the center, and sometimes an associate administrator. The interviews, which lasted up to two hours, focused on the organization (e.g., auspices, fiscal year, type of facility, accreditation status); program structure (e.g., hours and weeks of operation, ages served, number of classrooms by age group, enrollment by age group, CERDEP enrollment for 4K, and program services); staffing patterns, required qualifications, and non-wage benefits, particularly for CERDEP classroom staff and program administrators; and sources of revenue.

The remaining sections of the questionnaire covered details on expenditures for the most recently completed fiscal year. Given our interest in estimating the per-pupil cost of CERDEP, the information we collected on expenditures needed to account for the fact that most of the district-based CERDEP classrooms were part of a larger school facility, such as an elementary school. Likewise, all of the private providers had classrooms serving younger children in addition to the 4K CERDEP classrooms. In both settings, we therefore needed to segregate expenditures for the CERDEP classrooms from those serving other age groups. Thus, expenditures were differentiated in three categories (see Table 2.2):

- **CERDEP classroom expenditures.** This included expenditures for the salaries, payroll taxes, and non-wage compensation of the lead teachers and assistant teachers in the classrooms supported with CERDEP funds. If other expenditures for staff professional

Table 2.2. Expenditure Categories and Items for Cost Analysis

Expenditure Category and Item	CERDEP Classroom Level	School or Center Level	District Level
Personnel expenses			
Classroom staff salaries	✓		
Classroom staff payroll taxes and benefits	✓		
Administrative staff salaries, taxes, and benefits		✓	✓
Other site-level staff salaries, taxes, and benefits		✓	
Other personnel-related expenses			
Professional development, training	✓	✓	
Program-related expenses			
Classroom supplies & other instructional support	✓	✓	
Food service		✓	
Transportation to and from program		✓	
Other transportation (e.g., field trips)		✓	
Occupancy expenses			
Rent / mortgage and taxes		✓	
Utilities		✓	
Repair and maintenance		✓	
Administrative and other expenses			
Office supplies		✓	
Postage and phone		✓	
Photocopying, printing, and publications		✓	
Equipment rental and maintenance		✓	
Nondepreciated equipment		✓	
Depreciation on equipment or purchase of equipment		✓	
Contractors (e.g., payroll, accounting, legal)		✓	
Insurance		✓	
Marketing and advertising		✓	
Interest and bank charges		✓	
Maintenance supplies		✓	
Licensing and fees		✓	
Dues and subscriptions		✓	
Other		✓	

SOURCE: Authors.

development or classroom materials and supplies could be assigned exclusively to the CERDEP rooms, those expenditures were recorded as well.

- Shared resources at the school or center level:** This category included all other expenditures—exclusive of compensation for classroom staff and other expenditures tied to specific classrooms—that were shared across classrooms at the school or center site. This included expenditures for the salaries, taxes, and benefits of other staff that support CERDEP (e.g., director or principal, other programmatic or administrative staff, food service staff); staff professional development; classroom materials and supplies; food service; transportation; occupancy (e.g., facility rent, utilities, repair and maintenance);

and other operating costs (e.g., telephone; postage; office supplies; advertising; licensing and fees; bank charges and credit card interest; insurance; accounting, payroll, and legal services). We also identified resources that were provided at a discount or donated, such as facility rent, utilities, or equipment. As discussed further in the next subsection, a portion of the expenditures for these school- or center-wide shared resources were allocated to the CERDEP classrooms.

- **Shared resources at the district level:** This captured support for CERDEP at the district level and only applies to public CERDEP providers. This would include a director of early childhood programs for the district and other shared district administrative expenditures. A portion of these district-level expenditures were also allocated to CERDEP classrooms.

In most cases, we discussed the expenditure information we were seeking during the interview and the provider submitted the detailed expenditure data after the interview, given the need to assemble the financial records, often with the assistance of a district financial officer or center finance director, accountant, or bookkeeper. Nine of the ten providers sent further detailed financial information on program expenditures; one of the school districts opted out of sending any additional information. One school district sent incomplete information, precluding the use of some of their data in the analyses that follow.

Approach to Estimating Per-Pupil Costs for CERDEP

A formal cost analysis would typically aim to account for the value of all resources used in the delivery of a given program, such as CERDEP. This would entail accounting for not only cash outlays, but also for the value of resources that may have been provided to the program at a discount or at no charge (e.g., subsidized or free rent, use of equipment without charge, volunteer time). This full accounting represents the value to society of the resources used, which may exceed the actual cash outlays on the part of the provider. In our case, we are interested in understanding the costs that providers face when delivering CERDEP, in order to compare it with the reimbursement they receive from the state. Thus, in our case, we focus on estimating the per-pupil cash outlays for CERDEP services, although we note when providers reported receiving donated goods or services or had the use of resources without cash expenditures (e.g., the use of donated space or a fully owned building with no mortgage).

To generate a per-pupil cost we proceeded as follows for each provider (school site or center), based upon the information gathered from our interviews:

1. Generate an estimate of total direct expenditures for CERDEP classrooms and the aggregate center, school, or district indirect expenditures that support CERDEP classrooms, where expenditures may fall into the categories listed in Table 2.2. A share of the center-, school-, or district-wide indirect expenditures are allocated to CERDEP as discussed in the next step.

2. Calculate the **proportion of shared resources to allocate as CERDEP expenses**, based on either (1) the enrollment in CERDEP classrooms as a share of total enrollment in the school or center (labeled the *enrollment share*) or (2) the share of CERDEP classrooms as a share of the total number of classrooms in the school or center (labeled the *classroom share*). In most cases, the enrollment share and classroom share were very similar so that we could use either proportion and reach a similar estimate. Nevertheless, based on whether the use of resources was likely to be proportional to enrollment or to classrooms, we used the enrollment share for all shared expenditures except for the following categories where we used the classroom share: staff professional development and occupancy.
3. Apply the shares from the second step to generate an estimate of **total direct and indirect expenditures** for CERDEP classrooms. This consists of the sum of CERDEP classroom costs, CERDEP share of expenditures at the school or center level, and (for public schools only) the CERDEP share of expenditures at the district level.
4. Calculate the **cost per pupil for CERDEP classrooms** as the total direct and indirect CERDEP expenditures divided by total enrollment in the CERDEP classrooms.¹⁶
5. Calculate the **cost per pupil-hour for CERDEP classrooms** as the per-pupil cost divided by the annual CERDEP hours. For a CERDEP site operating for 6.5 hours per day for a 180-day school year, total annual hours are 1,170.¹⁷ A similar estimate is made for the cost per pupil-day.

To maintain the anonymity of the participating providers in our study, they are referred to by letter, A to I, where A to D are the public providers and E to I are the private providers. All expenditure figures are reported per pupil or per pupil hour, rather than in their aggregate dollar values. In reporting results for the school districts, we have created an aggregate estimate of expenditures across all CERDEP sites (i.e., schools or centers), rather than reporting results for each site separately.

In order to compare cost structures across providers, we report alternative estimates of per-pupil costs after making several adjustments to account for differences in how key cost components are treated. Because of differences in how components of occupancy costs are treated across providers, with some private centers receiving partially or fully subsidized rent and school districts not paying rent for the use of their facilities, we present per pupil costs exclusive

¹⁶ Note that in some private centers, 4K classrooms had both CERDEP-funded children and children funded by other sources (e.g., parent fees or state child care subsidies). In those cases, we used the total classroom enrollment to calculate per-pupil costs. This effectively assumes that CERDEP and non-CERDEP children in the same classroom share resources evenly.

¹⁷ All private centers reported serving some CERDEP children as much as three additional hours per day. We constructed an estimated average annual hours as the enrollment-weighted average of 1,170 annual hours for the standard day (6.5 hours) and 1,710 for an extended day (up to 9.5 hours). Thus, we based an estimate of hourly costs on actual hours of service rather than the hours that may be reimbursed by CERDEP.

of occupancy costs. We likewise exclude transportation costs because not all providers, especially private centers, offer transportation.

A final adjustment is to account for differences across providers in the staff-child ratio. As noted in Chapter 1, CERDEP providers may serve up to 20 children in a classroom with a staff-child ratio of 1:10. Some providers choose to operate with fewer children in each classroom which means a lower staff-child ratio, while others had enrollment below their target of 20 children per room, which effectively lowers the staff-child ratio. Thus, we consider what the cost per pupil would have been if the same total expenditures applied for operating at full capacity of 20 children per classroom.¹⁸ This calculation effectively assumes that all CERDEP costs are fixed, so that serving a few more children in each classroom, to reach full enrollment of 20 children, will not add to the overall expenditures. This assumption is accurate for major expenditure categories such as personnel and occupancy, which are fixed given the number of rooms in use. In reality, some expenditures do vary per enrolled child, such as food costs and some classroom supplies, but these added marginal costs are likely to be small. Thus, we view the capacity adjustment as a reasonably accurate way to see how much of the variation in cost per pupil across providers might be explained by variation in the extent of full enrollment.

While we strived for a thorough accounting of all expenditures for all relevant CERDEP-related resources, there are a number of challenges in generating cost estimates for any given provider, as well as comparable estimates across providers. First, the cost estimates are most accurate for the salaries, payroll taxes, and non-wage compensation of the classroom staff in the CERDEP rooms. The compensation costs for these staff in the CERDEP classrooms are readily identifiable in accounting systems and accurately recorded. In most cases, all other resources are recorded at the school or center level and then allocated to the CERDEP rooms. We applied consistent and reasonable rules for those allocations, but they may differ, to some extent, from how resources are actually distributed across the CERDEP rooms versus other rooms in the school or center (e.g., the time usage of the director, the use of space in the facility).

Second, because of differences in accounting systems, programs did not disaggregate the expenditures in exactly the same way. For this reason, we focus on major cost components rather than detailed categories (e.g., reporting occupancy costs rather than separate components such as rent, utilities, and maintenance). Even at this aggregate level, there were some differences in how costs were assigned to different categories so that the reported expenditures in any given category will not necessarily be strictly comparable across the 10 providers.

¹⁸ This involves multiplying the estimated cost per pupil by the ratio of actual enrollment to full-capacity enrollment (i.e., 20 children times the number of classrooms). This adjustment factor is a maximum of 1 for programs that operate with 20 children per classroom and less than 1 for those programs operating with fewer than 20 children per classroom. This adjustment will therefore lower the per-pupil cost when programs are operating below full capacity.

Illustrative Provider-Based Estimates of CERDEP Costs

We now present the results based on the programmatic and financial information obtained from the five public school districts and five private providers that we interviewed. We first report on key features of CERDEP as implemented by each provider. While many features are the same because of program requirements, there are some elements that differ due to choices that providers can make such as the length of the program day, the length of the program year, and, in the case of private providers, the education level of the lead teacher. We then detail the major cost components for CERDEP providers and where there are substantial differences in cost elements. We follow with the per-pupil estimates and discuss the variation we observe for the illustrative providers and the difference between per-pupil cost and CERDEP reimbursement.

Variation in CERDEP Delivery Model Across Public and Private Providers

The structural features of 4K programs—hours per day, days per year, class size, and provision of specific services such as transportation and meals—have implications for the cost of program delivery. Table 2.3 summarizes these key features for the ten CERDEP providers we interviewed. Note that these features pertain to their overall 4K services, not just what they provide as part of delivering the portion of their program reimbursed by CERDEP. As indicated in the table, all ten providers deliver the program for 6.5 hours per day for the traditional 180-day academic year. For a few private providers, the core CERDEP full-day program was up to 8 hours, even though their reimbursement may just be for the traditional 6.5-hour CERDEP day. All five private centers also offer an extended day, with up to ten hours of total care per day. In addition, four of the school district programs extend to the summer months for six to eight weeks (sometimes just four days per week), while all of the center-based programs operate year round for up to 51 weeks.

As noted earlier, the school districts and private centers typically have more than one CERDEP 4K classroom at their site. For the school districts, CERDEP classrooms exclusively served CERDEP-eligible children, while the center-based programs sometimes had a handful of non-CERDEP-eligible children in the CERDEP classroom. In contrast, the school district sites often had other non-CERDEP 4K classrooms, typically funded with district funds.

With the exception of one school district and one private center where the programs operate with a maximum class size of 15 children, all other programs we interviewed seek to enroll 20 children per classroom, consistent with the CERDEP requirements. All providers also had a lead teacher and assistant teacher for each CERDEP classroom, meaning a ratio of at most one staff member to ten children as required. The difference in the class size, which affects the ratio, will have implications for per-pupil costs analyzed later in this chapter.

In terms of other program services, all of the district CERDEP sites provide transportation to and from school, usually as part of their existing transportation infrastructure. By contrast, just two of the private centers offer such transportation. All programs provide meals, specifically

Table 2.3. Program Structure for Ten CERDEP Providers Interviewed, 2017–2018 Academic Year

Indicator	School Districts (N = 5)	Private Centers (N = 5)
Program hours and days		
Hours per day for full-day program	6.5 hours	6.5 to 8 hours
Days per year for academic-year program	180 days	180 days
Offer hours beyond the full-day program ^a	0 of 5	5 of 5 (1.5 to 3 hours)
Offer summer/extended-year program ^a	4 of 5 (24 to 40 days)	5 of 5 (65 to 80 days)
4K enrollment beyond CERDEP		
Enrollment of non-CERDEP children in CERDEP rooms	0 of 5	3 of 5
Enrollment of 4K in non-CERDEP rooms	3 of 5	0 of 5
Class size and classroom staff		
Maximum class size	15 (1), 20 (4)	15 (1), 20 (4)
Number of teachers per classroom	Lead and assistant	Lead and assistant
Other services		
Transportation to and from program	5 of 5	2 of 5
Meals	Breakfast: 3 of 5 Lunch: 5 of 5 Snack: 1 of 5	Breakfast: 5 of 5 Lunch: 5 of 5 Snack: 5 of 5
Direct provision of developmental assessments	5 of 5	5 of 5
Direct provision of health screenings	5 of 5	0 of 5
Formal family referrals to services	4 of 5	2 of 5

SOURCE: Provider interviews.

NOTES: – = not applicable.

^aThe added hours or days beyond a 6.5-hour day or 180-day year may or may not be supported by CERDEP funding.

lunch, while all private centers also report providing breakfast and a snack, meals that are not always offered in the district-based programs and, as required, all programs conduct developmental assessments. Although it is not a CERDEP requirement, all of the school districts conduct health screenings, typically for vision, hearing, and speech, and sometimes dental and obesity screenings as well. Private providers often have third parties (such as school district staff) come to their center to do the screenings, thus they are not incurring those costs directly. Four of the five districts and two of the private centers also reported having a staff member or other resource for referring families to needed services such as cash aid, housing assistance, or subsidized health care.

Another key programmatic feature with implications for cost is the classroom staffing model, professional development supports provided to classroom staff, and fringe benefits that are part of the compensation package. As noted earlier, all ten providers staff each classroom with a lead teacher and an assistant teacher (also known as an instructional assistant). For public schools, CERDEP requires lead classroom teachers to have a bachelor's degree with a specialization in early childhood (e.g., a teaching certificate in early childhood). As shown in Table 2.4, all public school districts reported meeting that standard. Although private centers require a minimum of

Table 2.4. Staffing Model, Supports, and Fringe Benefits for Ten CERDEP Providers Interviewed, 2017–2018 Academic Year

Indicator	School Districts (N = 5)	Private Centers (N = 5)
Lead CERDEP teacher qualifications		
Has a bachelor's degree + ECE specialization	All lead teachers: 5 of 5	All lead teachers: 1 of 5 At least 1 lead teacher: 2 of 5*
Has a bachelor's degree, no ECE specialization	–	All lead teachers: 2 of 5
Assistant CERDEP teacher qualifications		
Has a bachelor's degree w/ or w/o ECE specialization	At least 1 assistant teacher: 1 of 5	At least 1 assistant teacher: 3 of 5
Provide PD beyond First Steps	5 of 5	5 of 5
Fringe benefits for classroom staff		
Health, dental, vision	5 of 5	1 of 5
Retirement	5 of 5	0 of 5
Paid sick or personal leave	5 of 5	4 of 5

SOURCE: Provider interviews.

NOTES: – = not applicable.

an associate degree (with documentation of working toward a bachelor's degree), one of the centers employed lead CERDEP teachers who all had a bachelor's degree with ECE specialization, and two other centers had a least one CERDEP classroom lead teacher with that qualification. All lead teachers in the two remaining centers had a bachelor's degree but without the ECE specialization. Despite the difference in requirements, all five of the private providers had a least one lead CERDEP teacher with a bachelor's degree. For one district and three centers, at least one of the teacher assistants also had a bachelor's degree. All five private providers reported offering at least some additional professional development opportunities beyond what was offered by First Steps such as external conferences, online courses, and other trainings.

Finally, we note an important difference between the school district CERDEP sites and the private providers. In the districts, classroom staff receive a comprehensive set of fringe benefits (health, dental, and vision coverage; retirement contributions; and paid sick or personal leave). By contrast, all but one private center offered paid sick or personal leave, but none provided retirement contributions and just one provided subsidized health insurance. Some centers offered more benefits for the director or other administrative staff.

Expenditure Components for CERDEP Delivery

The information collected from the nine illustrative providers that sent detailed financial information can be used to identify the resources or “ingredients” required to deliver the CERDEP model, given such program requirements as teacher qualifications, class size, the ratio of classroom staff to children, the curriculum, professional development activities, and other

program features. As such, the information in this section helps to address the first study question.

Table 2.2 provided a comprehensive list of the expenditure categories and items that would be expected for a CERDEP 4K program. Although providers did not always report expenditures at the level of disaggregation in Table 2.2, at least some expenditures fell in each category for every provider. We highlight, however, three important differences in the relevance of an expenditure category or its value.

Wages and Salaries; Fringe Benefits

In reporting on the wages and salaries for CERDEP classroom staff, some providers reported the aggregate amount for all teachers, while others provided a detailed breakdown. That detail revealed striking differences, documented in other settings as well, between the wages and salaries paid to classroom teachers in public CERDEP sites versus those in private centers. For public schools, lead teachers had annual salaries that ranged from \$35,000 to \$52,000, compared with \$19,000 to \$43,000 for the lead teachers in private centers. These differences are consistent with occupational wage data assembled by the U.S. Bureau of Labor Statistics (BLS) (undated), discussed further in the next chapter. As noted above, the teacher credential requirements differ between the public and private settings. The lower education requirement in the private settings is one explanation for the disparity in pay. However, as illustrated in Table 2.4, at least one lead teacher in each of the five private providers we interviewed held a bachelor's degree and in one case the lead teacher also has their degree in ECE. As such, these data suggest that bachelor's-level teachers in private and public CERDEP settings are paid at different rates despite having similar levels of formal education.

The salary differentials were less evident for assistant teachers, where salaries ranged from \$13,000 to \$21,000 for those in public school classrooms versus \$19,000 to \$21,000 for those in centers. Again, we did not collect this salary information consistently across all providers; therefore, we acknowledge these figures are not necessarily representative of the range we would find across all CERDEP classroom staff across the state. Even so, together with the information on fringe benefits for teaching staff (Table 2.4), this set of providers illustrates the substantial differences in the total compensation packages for CERDEP teachers, particularly lead teachers, in public versus private settings.

Transportation

As noted earlier, while all public schools provide transportation services by augmenting their existing transportation system to accommodate the 4K students, just two of the private centers also provide transportation (using a small number of minibuses). For one center, the bus drivers assist in the classrooms once the children arrive at the center, and they reprise their driving role in the afternoon. For those centers without transportation, they may still have a small amount of transportation-related expenditures for field trips.

Occupancy

We defined occupancy costs to include rent (or mortgage and property taxes), along with utilities, repair, and maintenance. None of the public school CERDEP sites reported costs for rent or a mortgage because their buildings are fully owned. In addition, two of the five centers, which are located in church buildings, reported receiving the space without charge. Because we focus on expenditures from the perspective of providers, we do not impute a rental equivalent. However, to compare per pupil cost across all programs, we also report cost per pupil exclusive of all components of occupancy costs.¹⁹

Illustrative Estimates of Per Pupil Costs

Table 2.5 provides results for nine of the ten providers that supplied at least partial expenditure data: four school districts and five centers.²⁰ The table reports the estimated cost per pupil, which ranges from an average of about \$8,600 for the district-based programs to \$6,900 for the center-based sites, suggesting a higher cost per pupil in the district-based sites compared with center-based programs (a difference of about \$1,700 per pupil). The table also shows the cost components that are not included in the per-pupil cost estimate, which varies across the providers in ways that affect this comparison. For example, all five of the districts did not have rental costs for their facility (a component of occupancy costs), nor did we impute a rental equivalent. Likewise, two of the private centers either had a fully subsidized space or owned their own facility. In the case of transportation cost, three of the five center-based programs did not provide transportation services, while one district did not report their transportation expenditures. These differences in the expenditure data means that the per-pupil cost is not strictly comparable across the nine providers.

Table 2.5 also shows the staff-child ratio for all nine providers. Notably, the district-based programs all operate close to capacity, with either a 10-to-1 ratio or just slightly below. In contrast, three of the center-based sites operate below capacity either intentionally (e.g., a planned enrollment of 15 CERDEP children per classroom) or because of unfilled slots. The lower ratio in these sites means that per-pupil costs will be higher compared with sites that operate with 20 children per room, with all else remaining equal. Indeed, of the three centers with the highest per-pupil expenditures, two have enrollment below 20 children per classroom.

Explaining Variation in Per Pupil Costs

The expenditures-per-pupil figures reported in Table 2.5 do not provide an apples-to-apples comparison of per-pupil cost because of differences across providers in terms of occupancy and transportation costs, as well as differences in the staff-child ratio. To allow for greater

¹⁹ Alternatively, we could have excluded just the rental portion of occupancy, but not all providers separated out the rental cost from other occupancy-related costs.

²⁰ One of the districts reported expenditures only for classroom personnel (salaries and benefits). We include this district for the comparison of classroom personnel costs.

comparability of per-pupil cost, Table 2.6 shows a sequence of adjustments across the nine providers. Line A shows the same result as Table 2.5 for total per pupil cost. Line B removes all occupancy-related cost from the per-pupil estimate, line C further removes transportation cost, while line D deducts the central administrative costs (e.g., school or district leaders; center leaders). What remains are the personnel costs for the classroom staff and classroom materials and supplies, food, and other operating costs which are more or less consistently reported across providers. On this basis (line D), the average cost per pupil for the three public school districts is about \$7,400 per pupil, versus \$4,600 per pupil at the private centers, a difference of about \$2,800.

We make two further adjustments. The first is to account for enrollment below 20 students per classroom. As noted earlier, we assume that up to 20 children could be served in each classroom without additional costs on the margin, given that all classroom and administrative staff would not change.²¹ This adjustment (line E) lowers the cost for private centers compared with public sites, which further widens that gap between the two provider types to about \$3,300. A final adjustment is to consider just the per-pupil cost of the compensation for the classroom staff, shown as line F, again with the adjustment for underenrollment. (For this expenditure component, we can now include District D in our comparison.) This narrows the gap between per-pupil cost for public versus private providers to about \$2,300 per pupil (about \$5,000 per pupil for public providers versus \$2,700 for private providers.).²² This gap is entirely the result of difference in salaries and benefits between the public and private CERDEP programs.

Other factors may explain some of the variation that still remains after the adjustments shown in Table 2.6. For example, price levels (e.g., teacher salaries, cost of other goods and services) may vary across the communities where our nine sites are located, in ways that raise or lower costs relative to the state average.

Additional Sources of Revenue

The per-pupil estimates in Table 2.6 indicate the per pupil costs for both public and private providers exceed the standard CERDEP reimbursement of \$4,422 per pupil applicable in 2017–18. For private center-based providers that offer transportation services such as Centers E and H, adding the per pupil transportation reimbursement of \$562 that applied in the 2017–2018 school year still leaves a gap. This suggests that public and private providers must be supplementing CERDEP funding with other sources of revenue to cover their full costs. Although we did not collect detailed information on program revenue, we did ask providers to report which sources of revenue they had in 2017–2018. As shown in Table 2.7, providers rely on an array of public and private funding sources. Among the CERDEP funding streams, all providers had CERDEP

²¹ The adjustment involves dividing total expenditures or any subset of expenditure components by potential enrollment (i.e., 20 children times the number of classrooms) instead of using actual enrollment. This adjustment will have no effect on the estimated per pupil cost if actual enrollment is already 20 children per classroom.

²² The gap narrows because the district-based programs, after adjusting for class size, spend about \$1,000 more per pupil on average for administrative staff, food service personnel, and custodial staff.

Table 2.5. Estimated CERDEP Per Pupil Cost for 10 CERDEP Providers Interviewed, 2017 Dollars

Indicator	District A	District B	District C	District D	Center E	Center F	Center G	Center H	Center I
Cost per pupil (\$)	8,422	8,479	8,992	–	7,323	6,514	5,414	7,980	7,273
Rent or equivalent not included	✓	✓	✓	✓			✓	✓	
Central administration not included				✓					
Transportation not included/provided				✓		✓	✓		✓
Staff-child ratio	9.8	10.0	9.9	10.0	10.0	7.5	10.0	7.5	8.8

SOURCE: Authors' analysis.

NOTES: – = not able to compute because of incomplete information. Expenditure information for District D was incomplete.

Table 2.6. Estimated Adjusted CERDEP Per Pupil for 10 CERDEP Providers Interviewed, 2017 Dollars

Indicator	District A	District B	District C	District D	Center E	Center F	Center G	Center H	Center I
A. Cost per pupil (\$)	8,422	8,479	8,992	–	7,323	6,514	5,414	7,980	7,273
B. Line A without occupancy (\$)	8,149	7,954	8,563	–	4,871	4,153	5,153	7,368	5,902
C. Line B without transportation costs (\$)	7,773	7,708	8,326	–	4,871	4,112	5,144	7,307	5,901
D. Line C without administration cost (\$)	7,318	7,133	7,751	–	4,427	3,081	3,974	6,864	4,624
E. Line D with adjustment for class size of 20 (\$)	7,196	7,133	7,674	–	4,427	2,311	3,974	5,148	4,085
F. Classroom personnel with adjustment for class size of 20 (\$)	5,244	4,774	5,081	5,326	3,567	1,586	2,826	3,173	2,395

SOURCE: Authors' analysis.

NOTES: Expenditure information for District D was incomplete. – = not able to compute because of incomplete information.

Table 2.7. Sources of Revenue for 10 CERDEP Providers Interviewed, 2017–18 Academic Year

Revenue Source	School Districts (N = 5)	Private Centers (N = 5)
Sources of public funding		
CERDEP instruction	5 of 5	5 of 5
CERDEP new provider	1 of 5	3 of 5
CERDEP transport	–	2 of 5
CERDEP expansion (extended day, year, or summer)	2 of 5	3 of 5
Early Head Start / Head Start	–	1 of 5
USDA Child and Adult Care Food Program	4 of 5	3 of 5
Title I	1 of 5	–
Other district funds	4 of 5	–
SC Vouchers	–	5 of 5
Other public funds	1 of 5 (EOC grants)	0 of 5
Sources of private funding		
Parent fees	0 of 5	5 of 5
Sponsoring agency	–	1 of 5
Special events/fund raising	1 of 5	4 of 5
Private donations	3 of 5	3 of 5

SOURCE: Provider interviews.

NOTES: – = not applicable.

instruction reimbursement, but fewer had new provider reimbursements in the fiscal year of interest (although some reported receiving those funds in earlier years). CERDEP transport (for private providers only) and expansion funds were also used by a subset of the providers.

Other public funding sources apply differentially to districts and centers. Among public school districts, one applied Title I funds for a subset of their schools with CERDEP classrooms and 4 had other district support (e.g., general funds) for their CERDEP classrooms. One center had Early Head Start funding for younger children, and all centers reported serving children with SC Vouchers. Among the public sources that apply to both districts and centers, seven of the ten providers reported reimbursement through the USDA CACFP. In terms of private sources of revenue, parent fees are charged for at least some non-CERDEP families in all of the center-based programs, while a subset of centers rely on support from their sponsoring agency, fundraising events, and other private donations. Fewer district-based programs relied on private sources, either from special events or private donations. No providers reported funding through other community groups or from employers (not shown in the table).

3. Model-Based Estimates of CERDEP Costs

We now turn to our second approach for examining total per-pupil costs of CERDEP. This approach is based on a cost model we developed, informed by the providers examined in the prior chapter, to estimate the variation in total cost per pupil under alternative scenarios regarding the provider type, teacher qualifications and compensation, program scale, price structure, and the inclusion of specific cost components (namely facility rent and transportation). A cost model (also called a cost-estimation model or cost calculator in the ECE field) estimates the cost to provide child care or preschool services based on specific assumptions about the structure of the program (e.g., the total enrollment, the program hours per day and weeks per year, the ages of children served, the number of classrooms of each type and children per classroom, and the number and qualifications of staff for each classroom) and other program inputs (other labor, food service, transportation, space requirements, and all other materials and supplies listed in Table 2.2), along with the prices or cost of each of these inputs (e.g., staff salaries, the cost of rent and utilities, the cost of other goods and services) (Davis et al., 2017). Based on the assumptions about resource inputs and their cost, the model multiplies the quantity of each input by its price and sums across all inputs to obtain a total cost for the program structure.

In our case, the 4K CERDEP cost model we develop is for the traditional year program option—6.5 hours per day of instruction for 180 days per year. All other assumptions and program features are consistent with CERDEP requirements, such as the qualifications of the teaching staff, the provision of meals, and so on. These model-based estimates of the cost to deliver CERDEP in a public or private setting primarily serve to address our second and third study questions in a more structured way. First, the results produce estimates of total per-pupil costs under baseline assumptions. Second, the model illustrates the variation in per-pupil costs under alternative provider contexts, thereby pointing to the major cost drivers. Third, the model-based per-pupil cost estimates are compared with CERDEP reimbursement rates to determine if provider costs are covered by state funds. We begin by describing the baseline model assumptions (some of which is documented in Appendix C) and alternative scenarios before presenting the results.

Approach

Given the scope of our work, it was not possible to develop a model to generate estimated CERDEP cost per pupil under all possible combinations of program structure, staffing models, salary scales, and other key program features. To make our analysis tractable, we therefore consider several basic provider types that vary along key dimensions with assumed features that could be considered typical of public and private programs in the state. For each provider type,

we first estimate per-pupil total costs under baseline assumptions that are as realistic as possible in terms of the cost structure that providers face in South Carolina. We then examine how costs vary as we change key assumptions about the program context and other assumptions. Together, the variation across the baseline provider types and the sensitivity analyses correspond to major cost drivers and also capture features, discussed in Chapter 1, that are considered in state 4K reimbursement rates (e.g., variation by public versus private status, teacher qualifications, geography).

As with our Chapter 2 analysis of CERDEP costs for selected providers, our cost model is also designed to produce an estimate of the per-pupil cash expenditures for CERDEP providers. Effectively, the model captures the provider’s experience regarding program expenditures which can be compared with program revenue sources from the public sector (e.g., the per-pupil CERDEP reimbursement). Our modeling approach builds upon the Provider Cost of Quality Calculator (PCQC) (Office of Child Care, undated).²³ Our adaptation of the tool is benchmarked against the ten providers examined in Chapter 2, in terms of the assumptions regarding program structure and the resources associated with the provision of CERDEP. We also draw on information about salaries for 4K programs in public schools and private centers using teacher salary information for South Carolina and occupational wage data for South Carolina maintained by the U.S. Bureau of Labor Statistics (BLS). In addition, for public school districts, we examine total enrollment and 4K enrollment by district and site to benchmark our baseline case and sensitivity analyses.²⁴ The model produces estimates of per-pupil costs—in total and by major cost components—for CERDEP providers under varied circumstances.²⁵ The expenditures capture both direct costs associated with CERDEP classrooms and indirect resources at the district, school, or center level. Our methods discussion first addresses major assumptions for the baseline model and then reviews the alternative scenarios we consider.

Assumptions for the Baseline CERDEP Cost Model

Our CERDEP cost model produces cost estimates at the site level (public school or private center) and requires specifying the resource quantities needed to implement CERDEP based upon assumed features of the site, such as the number of CERDEP rooms, the class size, the

²³ The PCQC was developed by the U.S. Department of Health and Human Services’ Office of Child Care to support efforts on the part of federal, state, and local policymakers, as well as ECE practitioners, to understand the cost of providing high-quality ECE. The model assumptions about program structure, cost elements, and unit costs have been validated against cost data for samples of providers across the United States and the tool is widely used, including for purposes of setting provider reimbursement rates under state CCDF child care subsidy programs. As with our model, it is designed to be an estimator, rather than a precision tool.

²⁴ We do not have comparable information about total enrollment and CERDEP enrollment for the universe of private centers that deliver CERDEP.

²⁵ In many respects, our cost model is similar to the approach adopted by the EOC (2006) when CERDEP began in order to estimate per pupil reimbursement rates. Our model is more comprehensive in considering not just classroom-related costs but other direct and indirect costs required for CERDEP delivery. In addition, we consider a wider range of provider contexts (beyond public versus private settings and degree requirements) to examine the sensitivity of per pupil cost estimates to the provider circumstances.

teacher-child ratio, and so on. The relevant resources include the classroom and administrative staff positions required, the number of staff to employ in each position, the square footage of space to employ, the number of meals to be served, the classroom materials to be purchased, and so on. For each resource, a unit price is required such as the salary and benefits for each staff position, the cost of space per square foot, the cost of each meal, and so on. The prices for each resource may depend upon the provider context, such as public versus private status, being in a low- or high-cost area, and structural features such as the class size and educational qualifications of the lead classroom teacher(s). Once the resources are identified and the corresponding prices determined, the cost model multiplies each resource quantity by its price to obtain the total cost for each resource. The sum of the resource costs is the total cost for a program with the assumed features. Total cost divided by CERDEP enrollment is the measure of per-pupil cost.

Thus, the key assumptions for the baseline cost model fall into four categories: provider context, staffing model, staff compensation, and unit costs for other expenditure categories. We discuss assumptions in each of these areas in turn.

Provider Context

Our baseline model considers four illustrative provider contexts for CERDEP delivery, one that applies to public school district programs and three that pertain to private centers. These cases were selected because they allow us to vary three key program features within the baseline model: public versus private providers and, for private centers, staff compensation and lead teacher degree level. As discussed in Chapter 2, our illustrative providers demonstrate potential differences in the cost structure for public versus private providers, in part because of differences in staff compensation. The option within private centers—of employing lead teachers with an associate degree rather than a bachelor’s degree—is another potential key difference in program structure that could affect per-pupil cost. Other potential cost drivers such as price variation across geographic areas, program scale, class size (and thus the teacher-child ratio), rental cost, and transportation cost are addressed in the sensitivity analyses. Table 3.1 summarizes how we capture variation in program features and cost through the four baseline provider types (first column) and the sensitivity analyses (second column).

More specifically, as shown in Table 3.2, all four provider contexts assume the traditional CERDEP option: one operating with 6.5 hours per day for 180 days per year. CERDEP enrollment is assumed to be 40 children in two classrooms of 20 children each. The other key features are as follows (where the feature that changes in moving from type A to type B, from type B to type C, and from type C to type D is outlined with a box):

- **Type A** providers are sites operated by school districts (in a public school or stand-alone publicly funded center). As required under CERDEP, lead teachers are assumed to have a bachelor’s degree with ECE specialization. Compensation is consistent with typical salaries for public school teachers and administrators based on the median salaries for South Carolina, according to data from BLS (discussed further later in this chapter).

Overall, the site is assumed to have enrollment of 450 children across all grades (i.e., in the elementary school) and total enrollment of 150 4K children across all schools in the district.²⁶ By full enrollment, we mean that all classrooms are fully enrolled at 20 children each (i.e., no underenrollment). We also assume the program pays rent (or has a mortgage) for the CERDEP space, and provides transportation services for children enrolled in the 4K program (even though transportation is optional).

- **Type B** mirrors type A but is a private center rather than a public school. Notably, lead teacher qualifications are the same (a bachelor’s degree) with ECE specialization and compensation is at parity with compensation for similar staff roles in public schools (referred to as compensation *parity* in Table 3.2). All other programmatic features are assumed to be the same as type A, except that total enrollment in the center is 120 children, reflecting the different overall size of an elementary school site versus an ECE center. With two CERDEP rooms (40 4K slots total), this means two-thirds of the enrollment in the center is comprised of younger children (i.e., infants, toddlers, and 3K children).

Table 3.1. Sources of Per-Pupil Cost Variation Addressed in Baseline Cases and Sensitivity Analysis

Source of Variation in Per Pupil Cost	Examine in Baseline	Examine in Sensitivity Analysis
Provider type	Public versus private	–
Compensation for classroom staff (private centers only)	Public school salaries and benefits versus private center salaries and benefits	–
Highest degree of lead teacher (private centers only)	Bachelor’s degree versus associate degree	–
Price variation across geographic areas (assume state median in baseline)	–	Lower-cost versus higher-cost geographic areas
Program size (assume 2 CERDEP rooms in baseline)	–	Smaller (1 CERDEP room) and larger (4 CERDEP rooms) program size
Class size (assume enrollment of 20 per classroom in baseline)	–	Smaller class sizes (15 and 18)
Expenditures for rent (assume rent is paid in baseline)	–	No expenditures for rent
Transportation services (assume provided in baseline)	–	No transportation services provided

SOURCE: Provider interviews.

NOTES: – = not applicable.

²⁶ These enrollment assumptions are relevant for determining shares of salaries and other expenses at the school or district level. We based these assumptions on enrollment information for the 61 school districts that operated CERDEP in the 2017–2018 school year. For those districts, the median 4K enrollment was about 145 students, just under our assumption of 150 students. For the schools in those districts with CERDEP classrooms, the median 4K enrollment was 40 students (i.e., two classrooms) and a total school enrollment across all grades of about 450.

Table 3.2. Baseline Assumptions for Four Provider Types for CERDEP Cost Model

Features	Type A	Type B	Type C	Type D
Setting	School district school or center	Private center	Private center	Private center
Days	180	180	180	180
Hours per day	6.5	6.5	6.5	6.5
Lead teacher qualifications	Bachelor's with ECE	Bachelor's with ECE	Bachelor's with ECE	Associate degree
Compensation	Public school salaries and benefits	Pay parity with Type A	Center salaries and benefits	Center salaries and benefits
Salaries	50th percentile	50th percentile	50th percentile	50th percentile
Fringe benefit rate	45 percent	45 percent	12 percent	12 percent
Total district enrollment	150	—	—	—
Total school/center enrollment	450	120	120	120
Total CERDEP/4K rooms	2	2	2	2
Group size	20	20	20	20
Enrollment	Full	Full	Full	Full
Facility rent	Included	Included	Included	Included
Transportation	Included	Included	Included	Included

SOURCE: Authors' assumptions.

NOTES: The feature that changes in moving from Type A to Type B, from Type B to Type C, and from Type C to Type D is outlined with a box. — = not applicable.

- **Type C** private providers are the same as type B with the exception that compensation for staff is based on the salaries typical in South Carolina private child care settings, again based on median salaries using BLS data (see the discussion that follows).
- **Type D** private providers are the same as type C with the exception that the lead teacher has an associate (two-year) degree, the minimum education qualification for private centers under CERDEP.

The assumptions for the four provider types allow ready comparison of total per-pupil costs across provider type, compensation structure, and teacher qualifications. In particular, a comparison of type A versus type B shows the difference in costs for a district program versus a private program where degree requirements and compensation levels are held constant. Comparing type A with type C shows the difference in per-pupil cost in changing both provider type (public district program versus private center) and the associated compensation structure (public school district salaries versus salaries in private centers). As another example, a comparison of type C versus type D shows the effect on per-pupil cost for private centers of having a lower teacher qualification as allowed under CERDEP relative to the qualification required in school district programs.

Staffing Model

The model makes assumptions about the number of staff at the classroom level and staff at the site level (and district level in the case of type A public providers) (see Appendix C and Table C.1 for additional detail). Staff are measured as full-time equivalent (FTE) positions. For the classrooms, all provider types in the public and private sectors are assumed to operate with one lead teacher, one assistant teacher, and a 0.25 FTE floater (who substitutes in when needed so that there are two staff per room at all times).

In the case of the type A school district site, we assume a district-level ECE coordinator and a school principal, each of whom serves the larger 4K district or overall school population of students. At the baseline scale, we assume a 0.5 FTE district ECE coordinator and a 1 FTE principal. We also assume a school-level 0.33 ECE director, a 0.33 FTE office manager, and a 0.33 FTE administrative assistant for the 4K program. The type A district-based site is assigned a portion of the compensation for the district ECE coordinator where the share is based on CERDEP enrollment at the district site as a share of the overall 4K enrollment in the district. A similar logic is employed for the school principal except that we use the share of CERDEP enrollment relative to total site enrollment to assign a share of the salary for the principal. The full cost of the CERDEP ECE director, office manager, and administrative assistant are assigned to CERDEP.

In the case of the type B, C, and D private centers, each is assumed to have an ECE director, associate director, office manager, and administrative assistant. As site-level costs, a share of their salary is attributed as CERDEP costs based on the enrollment of children in CERDEP rooms as a share of total enrollment. Given the assumptions for type B, C, and D private centers with 40 children in CERDEP rooms and 120 children overall, 33 percent of the salary for the site-level administrative staff are assigned as CERDEP costs.

Staff Compensation

The cost model has assumptions about compensation (salaries and nonwage compensation) for each of the staff positions (see Table C.2 in Appendix C for details). Our salary assumptions are drawn from BLS data on occupational wages for South Carolina as of May 2017 (BLS, undated). We use the median estimates where available for the closest occupation code to each staff position. For example, because there is no public preschool teacher category, we use the category for kindergarten teachers (except special education teachers) as the best fit for the lead teacher salary in a public school district-based 4K program.²⁷ In contrast, for the lead teacher in a private center, we used the BLS occupational category for preschool teachers, which had a South Carolina median of about \$23,000, reflecting the lower salaries in private programs. Assistant teachers at the median are assumed to earn \$21,000 in public school and \$19,000 in

²⁷ The South Carolina teacher salary scale differentiates between degree level and years of experience but not the grade assignment (South Carolina Department of Education, undated). The median South Carolina public school kindergarten teacher salary of about \$51,000 according to the BLS is consistent with the average teacher salary at the state level for the 2017–18 school year.

private centers. The median salaries for the administrative staff positions are documented in Appendix C.

In addition to the salary costs for staff, we assume a fringe benefit rate to account for payroll taxes and other nonwage benefits for all staff (e.g., health, dental, and vision benefits; retirement contributions; and so on). Consistent with our findings for the public school sites in Chapter 2, we assume a 45 percent fringe rate for type A and type B providers (where parity is assumed for private providers). For type C and D providers, given the minimal fringe benefits offered by private centers and based on our illustrative cases and what is documented elsewhere (Thomason et al., 2018), we assume a fringe of 12 percent. This will cover payroll taxes and a very minimal benefits package (e.g., some paid sick or personal leave).

Other Unit Prices

The model also requires assumptions about the cost per unit of other cost components beyond classroom and administrative staff (see Table C.3 in Appendix C). At the highest level, this includes major cost categories of professional development, classroom resources, meals, transportation, occupancy, and other operating costs. In most of these categories, there are cost subcomponents. The baseline unit cost estimates are based on the PCQC estimates for South Carolina (Office of Child Care, undated) with adjustments based on the information provided by the illustrative providers. Because the number of children, rooms, and sites are the same across provider types A to D, the baseline costs per pupil are the same regardless of provider context and the alternative scenarios, with the exception of professional development (see Appendix C for details).

Note that we are assuming that the unit prices are effectively the same for public and private providers. Because of the ability of school districts to purchase in bulk, it may be the case that the unit costs for larger school districts would be lower compared with private providers, but South Carolina also has many smaller districts that may not have the same purchasing advantage. We do not have sufficient information, however, to estimate such differences. The possibility of these differences should be kept in mind. As discussed in the later in this chapter, we also consider lower and higher unit costs as part of our sensitivity analyses to account for geographic differences in price levels, but the same analyses could be used to consider any cost advantage associated with scale.

Alternative Scenarios Examined

In addition to the baseline model, we examine the sensitivity of our estimates of per-pupil cost to variation in several key parameters (see Table 3.1). In particular, we consider sensitivity to changes in six key areas:

- **Salaries and unit costs:** The baseline model assumes salaries are at the South Carolina state median. We examine how much lower per-pupil costs would be if salaries were instead at the 25th percentile of state salaries (again based on BLS data) and how much higher per-pupil costs would be if instead salaries were at the 75th percentile (see Table

C.2 for the salary assumptions). The lower-salary case can be equated to what salaries would look like in a more rural community, where wages tend to be lower. The higher-salary case, in contrast, would be consistent with a higher-cost urban setting. Assuming that prices more generally follow wages and salaries, in the low-salary context we adjust all other unit prices downward by 7.5 percent and we make an symmetric upward adjustment of 7.5 percent in the high-salary context (see columns two and three in Table C.3). Note that we have not considered the extremes of the potential salary range in South Carolina, which means that some providers could face even lower or even higher cost structures, depending on their geographic locale.²⁸

- **Program size:** The baseline model assumes two CERDEP rooms in each district site or private center. To investigate the implications of economies of scale, we consider two alternative size profiles for both public and private provider types A to D: one CERDEP room and four CERDEP rooms.²⁹ Per-pupil classroom-based costs will not change (because we still assume 20 children per classroom), but per-pupil site-based costs, such as those attributable to program administrative staff, will change to some extent, especially for the Type B, C, and D private center-based cases where we assume no change in the administrative staffing. For the Type A district-based program, the FTE administrative staff are allowed to adjust with enrollment, assuming it is easier to assign part-time 4K responsibilities to a staff person when there are multiple administrative staff. For example, in a small district or school, an assistant superintendent or assistant principal, respectively, may have responsibility for the 4K to grade 3 program, whereas a larger district or school may have one person dedicated to the district- or school-level 4K program. Thus, we expect per-pupil cost in district-based programs to be less sensitive to scale effects compared with the private centers.
- **Class size:** The baseline assumption is a classroom size of 20 children, consistent with CERDEP requirements. We consider two alternative scenarios for the class size: 18 children and 15 children. The case of 18 enrolled children could result from an explicit decision to operate with a smaller class size than what CERDEP requires, or it could arise if there were a 10 percent vacancy rate in the program site (i.e., two of the 20 CERDEP slots in each classroom are not filled). The same reasoning would justify the class size of 15, a size explicitly used by one public and one private provider in our illustrative cases

²⁸ In the BLS data on occupational wages and salaries, the median salary for each occupation used for the baseline model was the salary in the middle of the salary distribution in the state, i.e., the salary where half of salaries would be below and half above the cutoff point. The 25th percentile is the salary level where 25 percent of salaries in the state for a given occupation fall below that threshold, and 75 percent would be above it. The 75th percentile is correspondingly the salary level where 75 percent of salaries fall below that threshold and 25 percent would be above it. The BLS data also provide the state 10th percentile and 90th percentile for each occupation, extremes we do not consider in the model.

²⁹ The same public school enrollment data referenced earlier show district 4K enrollment of 80 students at the 25th percentile and 300 at the 75th percentile. At these points, school-level enrollment is just under 350 and just over 600, the two levels we assume in this model.

(see Table 2.3). That class size could also result with a 25 percent vacancy rate when the desired class size is 20.

- **Facilities rent:** In the baseline model, we include the rental cost of the space used for the CERDEP classrooms as part of the occupancy cost category. As noted in Chapter 2, public school providers generally do not incur rental costs associated with the space for their CERDEP classrooms. In addition, several of our illustrative private centers received fully subsidized rent. Thus, we consider an alternative scenario where rent is set to zero. Costs for utilities, repair, and maintenance are still included.
- **Transportation:** The baseline model assumes that transportation is provided for CERDEP children, although it is not required. Thus, we consider an alternative scenario for each of our four provider types (A to D) where transportation services are not offered.

Model-Based Estimates of CERDEP Costs

We now turn to the model-based estimates of CERDEP costs per pupil, focusing first on the cost estimates for the baseline model and then considering how those estimates vary under the various sensitivity analyses. These estimates address our second study question.

Estimated Per-Pupil Costs for the Baseline Model

Table 3.3 presents the results for total per pupil costs under the baseline assumptions for the four provider types, A to D.³⁰ Panel (a) shows cost per pupil in total and disaggregated by the major cost categories. Overall, on a per-pupil basis, provider types A and B are estimated to cost nearly \$11,000 per pupil, in contrast with about \$7,000 per pupil for types C and D. Notably, because of the assumptions and structure of our cost model, all per-pupil cost components other than personnel are the same or almost the same across the four provider types. In addition, the staffing model is effectively the same, as well. Thus, the difference in cost per pupil of about \$4,000 in moving from types A and B to types C and D is entirely attributable to the difference in compensation costs: salaries and benefits. Indeed, personnel costs are about two times higher for types A and B, where salaries are pegged to those for public school staff, along with a 45 percent fringe benefit rate. The type C and D private centers—with salaries pegged to those for staff in private centers, combined with a 12 percent fringe rate—are essentially constrained in their ability to compensate their staff at the public school levels, because many of the families they serve cannot afford to pay for a program with type A and B compensation levels (NASEM, 2018).

³⁰ The results in Table 3.3 are not comparable to those for specific providers in Table 2.5 because the cost components are not same in all cases. For example, the baseline per-pupil cost includes rental costs for all four provider types, whereas none of the public schools had expenditures in this category. Later when we examine sensitivity to the exclusion of rental cost, the results for Type A and the district providers in Table 2.5 are more similar.

Table 3.3. Model-Based Estimated CERDEP Per-Pupil Cost and Per-Pupil Cost Components, Baseline Model by Provider Type, 2017 Dollars

	Type A	Type B	Type C	Type D
Cost Component	Public Site	Private Center, Pay Parity with Public Site	Private Center, Center Salaries	Private Center, Center Salaries and Associate Degree
a. Cost per Pupil				
Personnel	7,957	7,928	4,092	3,963
Classroom	5,625	5,625	2,623	2,494
Administrative	2,333	2,303	1,469	1,469
Consultants/training	24	33	33	33
Classroom materials and supplies	150	150	150	150
Meals	1,050	1,050	1,050	1,050
Transportation	250	250	250	250
Occupancy	1,282	1,282	1,282	1,282
Other operating costs	220	241	241	241
Total	10,933	10,932	7,097	6,968
b. Percentage Distribution				
Personnel	72.8	72.5	57.7	56.9
Classroom	51.4	51.4	37.0	35.8
Administrative	21.3	21.1	20.7	21.1
Consultants/Training	0.2	0.3	0.5	0.5
Classroom materials and supplies	1.4	1.4	2.1	2.2
Meals	9.6	9.6	14.8	15.1
Transportation	2.3	2.3	3.5	3.6
Occupancy	11.7	11.7	18.1	18.4
Other operating costs	2.0	2.2	3.4	3.5
Total	100.0	100.0	100.0	100.0
c. Other Unit Cost Estimates				
Cost per pupil-day	60.74	60.74	39.43	38.71
Cost per pupil-hour	9.34	9.34	6.07	5.96

SOURCE: Authors' analysis.

NOTES: Percentages may not sum to 100 because of rounding.

Panel (b) of Table 3.3 confirms the expectation that the major cost component is for personnel. Given the higher compensation costs for provider types A and B (public and private with compensation parity), personnel costs reach about 73 percent of per pupil costs, compared with about 57 percent of costs for private provider types C and D (based on center compensation). Of the personnel costs, the larger share is for classroom personnel: lead teacher, assistant teacher, and floater. Of the other cost categories, the shares are always higher for provider types C and D because of the lower share in personnel costs. But regardless of provider type, occupancy has the next largest share after personnel (12 to 18 percent), followed by meals (10 to 15 percent). The other cost components have shares below 5 percent under any scenario.

Panel (c) computes cost per pupil-day and cost per pupil-hour as alternative unit cost measures. Because we are modeling costs for the traditional CERDEP option (6.5 hours per day, 180 days per year), the daily and hourly cost estimates indicate the average cost for an extended

day (additional hours per day) or an extended year (additional days per year).³¹ For Types A and B, the average daily cost are about \$60 per day, compared with about \$40 per day for Types C and D. Hourly cost are just over \$9 for Types A and B and about \$6 for Types C and D.

Variation in Per-Pupil Costs Under Alternative Scenarios

The baseline estimates demonstrate considerable variation in per-pupil costs for CERDEP depending on staff compensation. We now consider additional results for the six types of sensitivity analyses described earlier in the chapter. Panel (a) of Table 3.4 shows per-pupil costs under each alternative scenario for our four provider types A to D, where the first row in the table shows the baseline estimate from Table 3.3, which serves as our reference point. Panels (b) and (c) respectively record the absolute change and the percentage difference in per-pupil cost for each alternative scenario for the four provider types, each relative to its baseline. As described earlier, we examined sensitivity to assumptions in six areas:

- **Salaries and unit costs:** Assuming lower and higher salary and unit cost structures have a substantial effect on per-pupil costs, relative to the baseline, lower cost communities are estimated to have per pupil costs 11 to 14 percent lower compared with the baseline. The corresponding increase in per-pupil costs for higher-cost areas is about 18 percent. Together these estimates indicate a difference in per-pupil costs between lower- and higher-cost communities of \$2,000 to \$3,500, depending on the provider context. As noted earlier, our cost differentials do not reflect the possible extremes of the local price context, meaning that the gap in per pupil cost could be even higher if we contrasted the lowest-cost communities in the state versus the highest-cost communities.
- **Program size:** Varying program size from one CERDEP room to four CERDEP rooms has a modest effect on per-pupil costs, with higher costs of 3 to 7 percent in the smaller-scale scenario (one room) and a 3 percent reduction in per-pupil cost in the larger-scale scenario (four rooms instead of two). The gap in per-pupil cost is about \$300 to \$1,000 between the smaller- and larger-sized programs we consider. Note that the effect of changing the program scale is much smaller for the type A public program, because of our assumption that administrative staffing levels at the district or school level can be more easily adjusted compared with private center-based programs.
- **Class size:** Changing the class size has a more meaningful effect on cost per pupil. Dropping to 18 students per CERDEP room raises per-pupil costs by 7 to 10 percent relative to the baseline of 20 children in the group. A class size of 15 raises cost per pupil even more, by 20 to 27 percent, relative to the baseline. With 15 students per CERDEP

³¹ We report average cost per pupil day or per pupil hour, consistent with the approach used by South Carolina to calculate the reimbursement rate for a longer day or extended year (see Table 1.3). These are average cost estimates. If some resources are fixed and do not vary with the length of the day or program year, marginal cost may be lower than average cost although many cost components are variable such as the time of classroom staff and some occupancy costs.

Table 3.4. CERDEP Per-Pupil Cost by Provider Type Under Alternative Scenarios, 2017 Dollars

Scenario	Type A	Type B	Type C	Type D
	Public Site	Private Center, Pay Parity with Public Site	Private Center, Center Salaries	Private Center, Center Salaries and Associate Degree
a. Cost per Pupil				
Baseline	10,933	10,932	7,097	6,968
Salaries and unit cost				
25th percentile salaries, 7.5% lower unit cost	9,376	9,359	6,316	6,211
75th percentile salaries, 7.5% higher unit cost	12,845	12,819	8,380	8,207
Program size				
1 CERDEP room	11,228	11,601	7,599	7,469
4 CERDEP rooms	10,898	10,611	6,895	6,766
Class size				
18	11,996	11,791	7,623	7,479
15	13,931	13,361	8,525	8,353
Without rent ^a	10,059	10,059	6,224	6,095
Without transportation	10,683	10,682	6,847	6,718
b. Absolute Change from Baseline				
Salaries and unit cost				
25th percentile salaries, 7.5% lower unit cost	–1,557	–1,574	–781	–757
75th percentile salaries, 7.5% higher unit cost	1,912	1,887	1,282	1,239
Program size				
1 CERDEP room	295	668	501	501
4 CERDEP rooms	–35	–322	–203	–203
Class size				
18	1,063	859	525	511
15	2,998	2,428	1,428	1,385
Without rent ^a	–874	–874	–874	–874
Without transportation	–250	–250	–250	–250
c. Percentage Change from Baseline				
Salaries and unit cost				
25th percentile salaries, 7.5% lower unit cost	–14.2	–14.4	–11.0	–10.9
75th percentile salaries, 7.5% higher unit cost	17.5	17.3	18.1	17.8
Program size				
1 CERDEP room	2.7	6.1	7.1	7.2
4 CERDEP rooms	–0.3	–2.9	–2.9	–2.9
Class size				
18	9.7	7.9	7.4	7.3
15	27.4	22.2	20.1	19.9
Without rent ^a	–8.0	–8.0	–12.3	–12.5
Without transportation	–2.3	–2.3	–3.5	–3.6

SOURCE: Authors' analysis.

NOTES: Percentages may not sum to 100 because of rounding.

^a Rent is a component of occupancy costs. Still included in occupancy costs are utilities, along with repair and maintenance.

room, the per-pupil cost is higher by \$1,400 to \$3,000 compared to the baseline class size of 20, indicating the substantial effect on per-pupil cost of operating with a lower class size than the maximum allowable class size under CERDEP.

- **Facilities rent:** With nearly \$900 in per-pupil cost for rent based on our baseline model assumptions, removing this cost element from the larger category of occupancy costs reduces overall per-pupil cost by 8 to 13 percent. Although this is a modest difference, this scenario is quite common for public providers and for many private providers. Thus, the difference in cost per pupil could be nearly \$900 between a CERDEP provider that faces a rental or mortgage cost for their facility versus those that do not.
- **Transportation:** The model unit costs assume a transportation cost per pupil of \$250. Thus, eliminating this cost element lowers per-pupil cost by about 2 to 4 percent, a considerably more modest cost factor given our assumptions.

In sum, these results indicate that the cost per CERDEP pupil could be very different depending on the provider context. Key cost drivers include (1) the compensation level for classroom and administrative personnel, where those cost differentials may arise across geographic locales or because of the contrast in compensation between public versus private programs; (2) the class size (and hence the staff-child ratio); and (3) whether the provider has rental cost. There are also potential cost differentials, albeit more modest given our assumptions, associated with economies of scale and transportation.

This sensitivity analysis also demonstrates that the cost model, under the appropriate assumptions, closely replicates our estimates of per-pupil cost for the eight illustrative providers for which we had complete expenditure data (see Table 2.5). For example, the per pupil-costs for districts A, B, and C were between \$8,400 and \$9,000. These districts were in more rural communities, and each district’s CERDEP sites operated at a scale and class size similar to our baseline assumptions. None paid rental cost. Thus, the best comparison would be using the lower-cost community assumptions for a type A program—per-pupil cost of about \$9,400 in panel (a) of Table 3.4—less the per pupil cost of rent in the model of nearly \$900. This gives a range of about \$8,500 to \$11,100 which includes the estimates for the three district-based providers.

The circumstances of the private centers were all quite different in terms of their cost structure and would be most comparable to a type C or type D center. On the low end, center G in a more rural community, with no rental or transportation cost, had a per-pupil cost of about \$5,400, consistent with the lower-cost community per-pupil estimate for a type D center of about \$6,200, less \$1,100 for rent and transportation, but with the expectation of higher cost relative to the baseline from operating with a child-staff ratio of about 9-to-1 rather than 10-to-1. On the high end, center H had a per-pupil cost of about \$8,000. All lead teachers had a bachelor’s degree (without ECE specialization), the site had no rental cost, and it operated with a class size of 15, making it most comparable to a type C center with the lowest class size we modeled,

where per-pupil costs were estimated to be about \$8,500 (or about \$7,600 with the exclusion of the rental cost).

Comparison of Per-Pupil CERDEP Costs with Per-Pupil Reimbursement

The estimated per-pupil total cost based on the cost model can be compared with the current state reimbursement levels for CERDEP, our third study question of interest. Given that our model is based on unit cost data for 2017, we make the comparison with reimbursement rates as of the 2017–2018 school year. With an instructional reimbursement rate of \$4,422 per pupil for the traditional CERDEP option (as assumed in our model analysis), it is quickly evident that all of the estimated total costs per pupil across the scenarios we examined in Table 3.4 exceed, and often well exceed, this per-pupil reimbursement rate. Likewise, the hourly and daily reimbursement rates for extended-day or extended-year programs (see Table 1.3) fall short of the model-based estimated hourly and daily rates (see Table 3.3 where this is illustrated for the baseline). However, a more careful assessment is needed of the potential gap between the available sources of reimbursement versus estimated cost.

First, it is important to consider which revenue sources may apply. For private CERDEP providers that transport students to and from the program, additional reimbursement of \$552 per pupil was available in 2017–2018. In addition, because the income cutoff for CERDEP eligibility is the same as eligibility for the CACFP, providers can receive reimbursement for meal costs. Assuming the maximum possible reimbursement when children are eligible for free meals, a provider may claim as much as \$1.75 per breakfast and \$3.23 per lunch, for a total reimbursement over a 180-day school year of \$896 per pupil. Panel (a) of Table 3.5 records these possible revenue sources for the four provider types A to D. With these additional revenue sources, providers may receive up to a total of nearly \$5,900 per pupil.

Second, given the potential variation in cost structures, we also need to consider the difference in provider cost versus reimbursement based on the provider context. Panel (b) in Table 3.5 displays the gap between total per-pupil cost and the maximum possible reimbursement, with our baseline assumptions about salaries and unit prices for the four provider types, A to D. The table also reports the gap (when positive, indicating a revenue shortfall) as a percentage of total expenditures. Under the baseline model (case 1), provider types A and B have a gap that is close to half of total cost. The gap is smaller, but still positive, for provider types C and D, equal to about 17 percent of expenditures.

Case 2 in Table 3.5 shows the size of the gap when the cost of rent is eliminated (for providers without rental costs) and case 3 applies when both rent and transportation costs are not incurred. Note that when transportation services are not provided, the size of the gap increases because reimbursement for transportation is \$562 per pupil compared with our estimated cost of \$250 per pupil, producing an estimated net surplus when transportation is provided and reimbursed. Provider types C and D, with no rental costs (case 2) or with no rental or transportation costs (case 3), come closest to breaking even, with a shortfall of around \$250 to \$600 per pupil, about 4 to 11 percent of their estimated total cost.

Table 3.5. CERDEP Per-Pupil Cost Versus Per-Pupil Reimbursement by Provider Type Under Alternative Scenarios, 2017 Dollars

Scenario	Type A	Type B	Type C	Type D
	Public Site	Private Center, Pay Parity with Public Site	Private Center, Center Salaries	Private Center, Center Salaries and Associate Degree
a. Possible Reimbursements				
CERDEP instruction (\$)	4,422	4,422	4,422	4,422
CERDEP transportation (\$)	0	562	562	562
USDA food (\$)	896	896	896	896
Total reimbursement (\$)	5,318	5,880	5,880	5,880
Total reimbursement, no transportation (\$)	5,318	5,318	5,318	5,318
b. Per-Pupil Gap Estimates, All Applicable Revenue Sources and Baseline Cost Estimates				
1. Total cost (\$)	10,933	10,932	7,097	6,968
Gap = Cost – reimbursements (\$)	5,615	5,052	1,217	1,088
Gap as a percentage of cost (%)	51.4	46.2	17.2	15.6
2. Total cost without rent (\$)	10,059	10,059	6,224	6,095
Gap = Cost – reimbursements (\$)	4,741	4,179	344	214
Gap as a percentage of cost (%)	47.1	41.5	5.5	3.5
3. Total cost without rent and transport (\$)	9,809	9,809	5,974	5,845
Gap = Cost – reimbursements (\$)	4,491	4,490	655	526
Gap as a percentage of cost (%)	45.8	45.8	11.0	9.0
4. Instructional cost (\$)	8,381	8,389	5,388	5,259
Gap = Cost – reimbursements (\$)	3,062	2,509	–492	–621
Gap as a percentage of cost (%)	36.5	29.9	–	–
5. Instructional cost without rent (\$)	7,507	7,515	4,514	4,385
Gap = Cost – reimbursements (\$)	2,188	1,635	–1,366	–1,495
Gap as a percentage of cost (%)	29.2	21.8	–	–
6. Instructional cost without rent and transport (\$)	7,257	7,265	4,264	4,135
Gap = Cost – reimbursements (\$)	1,938	1,947	–1,055	–1,184
Gap as a percentage of cost (%)	26.7	26.8	–	–

SOURCE: Authors' analysis.

NOTES: Percentages may not sum to 100 because of rounding. – = not applicable.

The last three cases in Table 3.5 are based on considering what we refer to as *instructional costs*: classroom staff compensation, professional development, classroom materials and supplies, meals, transportation, and occupancy. Our definition is somewhat more expansive than that which was used by EOC (2006) when the CERDEP instructional reimbursement rate was first set.³² Focusing on our broader measure of instructional costs, there is still a sizeable, but

³² Our broader definition is based on identifying those costs that providers must incur, on the margin, as they add a CERDEP classroom to their program. For example, expenditures for the compensation of the CERDEP classroom staff and other classroom materials and supplies are clearly direct costs of the program. But the staff also require professional development, which adds to CERDEP costs on the margin. The same is also true for the meals served to CERDEP enrollees. Adding a CERDEP room incurs additional occupancy costs, as well, at least for providers that pay rent or have a mortgage. Although transportation services are not required, we include them because we include the transportation reimbursement as part of potential revenue. What is omitted from instructional costs are

smaller, revenue gap for type A and B providers paying public school salaries equal to as little as 27 percent of costs when the provider does not pay for rent or offer transportation (case 6). However, instructional expenses are covered by the available revenue sources for provider types C and D under all three cases (cases 4 to 6) because of the lower compensation costs we assumed for those two types of private providers. Indeed, focusing on just instructional costs, type C and D providers would have surplus revenue to offset at least some of the other noninstructional costs, such as general operations expenditures.

In sum, given our baseline assumptions, unless providers are paying the lower wages and benefits that characterize compensation in private centers, the available sources of reimbursement from CERDEP and subsidized school meals are not expected to cover the total cost of a high-quality CERDEP classroom, based on median salaries and average state unit costs—whether public or private. If we focus on the set of costs directly attributable to a CERDEP room, which we call instructional costs, there is still a gap between reimbursement and costs for public and private providers paying public school compensation rates. However, private centers with compensation comparable to other child care providers would see their instructional costs covered. We also note that although we have focused on cost per pupil, our findings would be replicated with respect to our estimates of CERDEP cost per pupil-day and cost per pupil-hour. Further, the gap analysis would show even higher gaps between CERDEP revenue and costs for providers in higher-cost parts of the state. Providers in lower-cost areas would see smaller gaps.

compensation for the provider administrative staff and other operational costs, most of which are fixed costs for the program as a whole and would typically be considered part of program overhead.

4. Key Findings, Policy Considerations, and Recommendations

CERDEP is South Carolina’s primary program for promoting school readiness among low-income children by providing a full-day 4K free of charge to families. For the public school districts and private center-based providers that deliver CERDEP, a central question is whether the state reimbursement is sufficient to cover the cost of a high-quality program. If reimbursement is not adequate, it may affect the ability of providers to deliver high-quality services and to sustain their programs, especially for private providers who may not have access to other sources of public or private funds to fill the gap.

The goal of this study has been to develop a more complete understanding of the total cost to deliver CERDEP under varied circumstances such as the provider type, local cost structure, teacher qualifications, and other aspects of program structure. Based on information on CERDEP costs gathered from ten illustrative providers throughout the state, we aimed to understand the cost components that providers face, both to support instruction and operate programs. Armed with this information, we have developed model-based estimates of the total per-pupil cost of CERDEP under alternative contexts such as public versus private providers, low- and high-cost locales, and structural features such as the size of a classroom group and the educational credentials of the lead teacher. These estimates have in turn supported an analysis of the ability of CERDEP reimbursements alone, or in combination with other public funds, to cover the costs CERDEP providers are estimated to incur.

In this closing chapter, we summarize our findings with respect to the questions that motivated this study. We then discuss the implications of our findings and enumerate several recommendations that flow from our analysis.

Key Findings

At the outset, we asked a series of questions related to the cost of delivering CERDEP:

- What are the “ingredients,” in terms of personnel, facilities, educational materials, and other supplies, required to deliver CERDEP in public and private settings? What are the sources of potential variation in program costs?
- What is the estimated per-pupil cost of CERDEP? Does the per-pupil cost vary by key programmatic features, such as public versus private settings, teacher qualifications, student enrollment, or geographic area?
- How does the per-pupil cost compare to the current per-pupil reimbursement rate for CERDEP providers?

We review our findings for each of these questions in turn.

Cost Ingredients and Sources of Cost Variation

Based on information on CERDEP costs provided by five school districts and five private providers, we confirmed that the delivery of CERDEP requires expenditures in multiple categories that we group as: personnel-related, namely salaries and benefits for classroom staff and administrative staff, as well as professional development; program-related, such as classroom supplies and other instructional supports, food service, daily transportation and transportation for special events (e.g., field trips); occupancy-related including rent (or mortgage and taxes), utilities, and repairs and maintenance; and a host of administrative costs associated with program operations, from office supplies to licensing and staff clearance fees. These cost elements are similar to those identified in other cost studies of 4K programs and are typically included in ECE program cost models (with the possible exception of transportation costs).

At the same time, despite operating programs under a common set of requirements, there are important differences across CERDEP providers that have implications for per pupil cost. The most meaningful of these differences are:

- **Compensation:** The data from providers confirmed what has been well documented elsewhere: striking differences in salary levels and benefits packages between public school district–based programs and private centers. For our illustrative providers, lead teachers in public schools, for instance, had salaries that ranged from \$35,000 to \$52,000, compared with \$25,000 to \$43,000 for the lead teachers in private centers. These differentials are not because of differences in the qualifications of the lead teachers: many private centers employed lead teachers in their CERDEP rooms with bachelor’s degrees and ECE specialization, even though that exceeded the program requirement. Moreover, the benefits package for public school teachers included subsidized health, dental, and vision insurance; a retirement plan; and time for paid leave, among other benefits. In total, benefits for public school teachers equated to about 45 percent of their salaries, compared with a fringe-benefit rate of about 12 percent for private centers, which mostly consisted of payroll taxes.
- **Transportation:** While all district-based CERDEP sites provide transportation services by augmenting their existing transportation system to accommodate the 4K students, just two of the private centers provide transportation (using a small number of minibuses). For one center, the bus drivers assist in the classrooms once the children arrive at the center, and they reprise their driving role in the afternoon.
- **Occupancy:** We defined occupancy costs to include rent (or mortgage and property taxes), along with utilities, repair, and maintenance. None of the public school CERDEP sites reported costs for rent or a mortgage because their buildings are fully owned. In addition, two of the five centers, those located in church buildings, reported receiving the use of their center space without charge.

Other differences in CERDEP operations that have implications for cost include the size of the group of children in the CERDEP room and the overall program size. As part of the cost

model we develop, we consider the sensitivity of per-pupil CERDEP costs to variation in these key program features: compensation, transportation, occupancy, class size, and program size.

Per-Pupil Costs and Variation by Provider Context

Given the small number of CERDEP providers for whom we gathered cost information, we focus on the per-pupil cost estimates derived from our cost model. It is important to keep in mind that the model results are for illustrative programs. Although designed to be as realistic as possible, the model produces estimated per-pupil costs that are conditional on the assumptions about program scenarios, structure, and other parameters.

We do not have all possible program circumstances included in the cases we examine. Nevertheless, we believe there are robust findings from the cost model that speak to the nature of the cost structure of CERDEP 4K programs.

In our baseline model, the estimated all-inclusive per-pupil cost for the traditional CERDEP option (academic school year at 6.5 hours per day), when delivered at a site operated by a public school district, was about \$11,000. For a private center operating with the same salary and benefit structure as the public schools (i.e., compensation parity), the equivalent cost was almost identical. Thus, there is no inherent difference in the cost in public versus private settings, when compensation levels are assumed to be the same and the program pays rent (or a mortgage) for its space. Rather, a more salient contrast was per-pupil costs for CERDEP delivered in private centers that pay salaries consistent with private child care centers, either for a lead teacher with a bachelor's degree or an associate degree as allowed under the CERDEP requirements. Those estimates showed per-pupil cost of about \$7,000. The cost differential of \$4,000 per pupil is entirely attributable to the higher salaries and benefits in the public school programs or private centers with public school pay parity. The other significant cost drivers were associated with local salary and price differentials, class sizes below the allowed level of 20 children per classroom, and whether space rental (or mortgage) costs were included.

CERDEP Cost Versus Reimbursement

With an instructional reimbursement rate of \$4,422 per pupil for the traditional CERDEP option (the program variant we model), it is quickly evident that the reimbursement rate per pupil across the scenarios we examined falls short by as much as 50 percent of the estimated CERDEP per-pupil cost. Likewise, the hourly and daily reimbursement rates for extended-day or extended-year programs fall short of the model-based estimated hourly and daily costs. Likewise, the hourly and daily reimbursement rates for extended-day or extended-year programs fall short of the model-based estimated hourly and daily rates. This gap between total cost and reimbursement also holds when we consider the additional per-pupil reimbursement for CERDEP providers that provide transportation and the potential reimbursement for meals under the CACFP. Together these sources bring the total potential reimbursement to \$5,900 per pupil, but that still falls short of total per-pupil costs, given our cost model assumptions. Even when we consider a narrower portion of provider costs, namely the cost components most directly attributable to a CERDEP

classroom, the per-pupil reimbursement rate is not sufficient to cover these direct instructional costs, except in private centers paying the lower salaries consistent with private child care.

The gap analysis also demonstrates that, given a CERDEP per-pupil reimbursement rate that is the same regardless of provider context, the size of the differential between per-pupil cost and reimbursement will vary substantially across CERDEP providers, based on their compensation schedule, geographic locale, class size, and other features that drive per-pupil costs. This introduces differentials across providers in terms of the extent to which their CERDEP costs are covered by state funds, and thus the amount of funds per pupil needed from other public or private sources to fill the gap.

Policy Considerations

The findings from our analysis raise a number of policy considerations regarding the reimbursement of CERDEP public and private providers for the services they provide. We highlight five issues in particular.

Using a Single Reimbursement Rate Versus One that Varies by Provider Context

Our analysis demonstrates that CERDEP providers, when meeting CERDEP requirements, will deliver the program with different total cost per pupil and those differences can be substantial, equating to several thousands of dollars in total per-pupil costs, according to our cost model. Differences in cost per pupil arise because of variation in compensation levels and unit prices for other resources across geographic locales, a factor that is largely beyond the control of the provider. Cost differences also arise because of the different choices providers make, such as whether to implement CERDEP with a smaller class size than what is required, thereby raising cost per pupil. But providers may also have a smaller class size because of difficulties maintaining full enrollment if children churn in and out of programs. Private providers also have the option to employ lead teachers with an associate degree rather than a bachelor's degree, thereby lowering per-pupil costs. Whether to offer transportation is also a choice factor, rather than a program requirement.

These differences in provider cost per pupil, whether under the control of the provider or not, raise the issue of whether the reimbursement mechanism should account for cost variation through varying reimbursement rates. Currently, by using a single statewide reimbursement rate for CERDEP, the cost differences are not being recognized. With a single rate, the extent to which a provider's costs are covered by the reimbursement will vary. Providers in lower-cost areas would cover a greater portion of their costs relative to providers in higher cost areas, all other factors remaining the same. Providers with a class size below 20 would have a smaller portion of their costs covered relative to providers with 20 children in each CERDEP room, all else remaining equal.

As discussed in Chapter 1 (see Table 1.5), some states have elected to vary their 4K reimbursement rate with key dimensions of program cost, such as type of provider (i.e., public

versus private), geographic locale, and lead teacher qualifications. Among the nine states we reviewed, five—Florida, Georgia, Kentucky, North Carolina and West Virginia—employ this approach. Likewise, as noted in Chapter 1, the reimbursement rate under SC Vouchers also varies with provider context. If the structure of the reimbursement rate schedule accurately mirrors the pattern of cost differences by provider circumstances, a reimbursement schedule that varies with the provider context will allow for more equal treatment in the extent to which provider costs are covered. This approach, however, introduces more complexity into the process of administering provider reimbursements, which may raise program central administrative costs.

Which Sources of Cost Variation to Recognize in the Reimbursement Rate Schedule

In moving beyond a single reimbursement rate, consideration must be given as to which sources of cost variation to recognize and how many dimensions in total to accommodate in the rate schedule. We have already noted that there are multiple potential sources of variation in CERDEP costs. As more and more dimensions of variation are incorporated in the reimbursement rate schedule, administration of the reimbursement process becomes more and more complex. At the extreme, a reimbursement rate could be assigned to each provider based on its program features, the equivalent of negotiating individual provider contracts that specify the reimbursement rate. Such contracts are employed in North Carolina’s 4K program and New York City’s publicly funded preschool program, just to name a few (NASEM, 2108).

In Table 1.5 we detailed the factors tied to 4K reimbursement for the five states that vary their reimbursement rate. We identified six sources of variation in these states: geographic locale, teacher education and compensation, private versus public provider status, class size, child disability status, and the number of days programs offer services. Most of the five states only vary their reimbursement rate by one or two of these factors; teacher education and compensation was the most common source of variation. Georgia was the exception to this pattern, as the rates in this state vary by all the identified factors, except for child disability status. In the case of SC Vouchers for four-year-olds in full-day programs (like CERDEP), the reimbursement rate varies by geography and quality rating.

Assuming a limited number of sources of cost variation would be recognized because of administrative cost considerations, the challenge becomes identifying which sources to recognize and how many dimensions, in total, to incorporate. One criteria could be to recognize sources of variation outside of the provider’s control, and another would be choices providers make, supported by evidence, to implement higher-quality features. For example, this would mean incorporating variation in the reimbursement schedule based on variation in costs across geographic locales, as well as recognizing the higher per-pupil cost for private providers who opt to employ bachelor’s-level lead teachers instead of their associate-level counterparts. On the other hand, unless there is evidence that smaller class sizes are cost-effective relative to the required class size of 20 (i.e., any additional gain in school readiness is worth the added cost), providers with lower class sizes would not receive a higher per-pupil reimbursement relative to those with full enrollment at 20 students. By linking higher per-pupil reimbursement to providers

choosing evidence-based higher-quality program features (such as the SC Vouchers provider payment schedule), the reimbursement schedule signals the priority given to high quality and thereby incentivizes providers to operate with high-quality features.

Another related criteria could be to provide an incremental reimbursement for program services that meet other policy objectives, such as supporting families' access to 4K programming. The current CERDEP reimbursement for transportation costs is one such example, although it is only available to private providers. The additional reimbursement for a longer day or longer year is another example of adding costly features that support families and their need for care. A possible fourth criteria would be to exclude costs for program components where providers qualify for reimbursement with other public funds. An example would be excluding a reimbursement component for meals when providers qualify for USDA CACFP reimbursement.

How Much of Provider Costs to Cover

Assuming all relevant dimensions of cost variation are identified for per-pupil reimbursement, a remaining issue is what share of provider costs should be covered by state funds. From the perspective of state policymakers, the current share of costs covered may be viewed as appropriate, although our model-based estimates suggest that providers are left with having to cover up to half of the total CERDEP costs from other sources. As public entities, we might expect school districts to have access most readily to other public funds, such as district general funds. This may justify reimbursing a smaller share of CERDEP costs for public school providers relative to private center-based providers for whom alternative funds are less likely to be available. Indeed, given the reimbursement gap under CERDEP presently, private center-based providers must, of necessity, pay lower salaries and provide fewer benefits compared with school district providers in order to break even.

As described in more detail in Chapter 1, four of the states we reviewed—Alabama, Mississippi, Tennessee and Virginia—have explicit policies that require a contribution of local funds to supplement the state reimbursement rates. In other words, the state reimbursement rate is not intended to cover the full cost of the program. Notably, there is wide variation in the per-pupil reimbursement rates among these states, ranging from \$2,150 per pupil in Mississippi to \$6,125 in Virginia. The range of reimbursement rates among states that are not explicit about whether the state rate is designed to cover the full cost of the program is similar: \$2,437 in Florida to \$5,850 in North Carolina. While this illustrative group of ten states (including South Carolina) is not inclusive of all states, we do not observe a clear pattern of higher reimbursement rates in states with no explicit expectation of cost-sharing among the states, providers, and other sources of funds; indeed, the ranges nearly overlap. Consistent with our findings in South Carolina, this may suggest that despite the lack of an explicit cost-sharing mechanism, there is an implicit assumption in these states that the reimbursement rate will not cover the full cost of the program.

Considering the revenue side of the cost-versus-reimbursement equation, the state share of CERDEP costs may be determined by whether there are other sources of revenue, public or

private, to fill the gap. For example, CERDEP reimbursement would not include the per-pupil cost of meals if providers are eligible for reimbursement of food costs under the CACFP, a federal entitlement (meaning all eligible children can participate). Providers that cannot be reimbursed by CACFP would receive the meal component of the CERDEP reimbursement schedule. If the CACFP per-pupil reimbursement rate is determined to be too low, the gap could be filled by CERDEP funds.

Access to federal Title I funds provides another interesting example of a funding source for 4K programs offered by public schools. As discussed in Chapter 2, one of the illustrative districts applies Title I funds to cover a portion of the costs of CERDEP. If full cost reimbursement became available for school districts, it would be important to consider whether a maintenance-of-effort (MOE) requirement should be in place to ensure that district providers sustain funding from other public sources under the new reimbursement approach. Otherwise, other funding sources maybe supplanted by CERDEP funds.

On the cost side, whether a cost component should be covered could vary by whether the costs are deemed essential to achieving high quality or are optional features with no incremental benefit in terms of program impact. Exclusion of certain expenditures from CERDEP reimbursement would require a solid understanding of CERDEP features and which of those have evidence to support their implementation. Examples could include higher expenditures on enrichment activities, such as extra field trips, beyond a specified threshold or the use of a high-cost professional development model that has not been shown to be effective.

Addressing the Compensation Differential for Public Versus Private Providers

One other key policy consideration is whether the CERDEP reimbursement mechanism would institutionalize the substantial differences in compensation between public schools and private center-based providers documented in this study and elsewhere. Our analysis demonstrates that there are not inherent cost differences by provider type beyond those associated with compensation. The compensation differential reflects historic differences in the professionalization of public school teachers, viewed as educators, versus those working in center-based programs, viewed as child care workers (NAS, 2016, 2018). As preK programs have been implemented in public schools, those teachers were paid on par with their counterparts teaching kindergarten and other early elementary grades. As a growing share of preK slots are delivered through public schools, the compensation differential has become a more visible issue.

In recent years, there has been growing attention placed on the need to achieve salary parity between preK teachers in public schools versus private centers and how to achieve that goal (NASEM, 2016, 2018). For example, just as public schools are required to follow a minimum salary schedule, First Steps could require that private center-based CERDEP providers adhere to the same (or a modified) salary schedule for their lead classroom teachers. A higher reimbursement rate would then be associated with adhering to the salary schedule. This approach ensures that the higher reimbursement to providers results in higher compensation for the program staff.

Of course, achieving compensation parity for private providers would result in an increase in the per-pupil cost of CERDEP relative to the status quo, and thus increased state funding if enrollment is to remain the same or increase. However, there would be a host of expected offsetting benefits from achieving parity, such as lower rates of staff turnover (and the accompanying increase in program quality) and a reduced reliance on the part of center-based staff on social safety net programs such as Medicaid and SNAP (Supplemental Nutrition Assistance Program) (NAS, 2018). At the same time, if compensation parity is addressed for 4K teachers in private programs but not for teachers in the same program in rooms with younger children (e.g., infants, toddlers, 3K), private providers may find that the within-site disparities in compensation for similarly qualified staff would create new issues in terms of staff performance, satisfaction, and retention. Thus, the addressing the issue of compensation parity must account for the disparities between public and private programs, as well as the differences across staff within private settings based on the ages of the children they serve (NASEM, 2018).

Addressing the Alignment in Reimbursement Rates Across Publicly Subsidized Programs

As noted in Chapter 1, CERDEP operates along with other programs that subsidize the cost of 4K in both public and private settings, namely the EIA Half Day Child Development Program implemented by school districts, as well as Head Start and SC Vouchers applicable to private center-based programs. Where providers may simultaneously participate in more than one program, as is the case with CERDEP and SC Vouchers in private centers, an issue is whether the reimbursement rates across programs are similar.³³ If reimbursement rates are not aligned, it may provide an incentive for providers to shift toward serving children in the program with the higher reimbursement rate, all else being equal.³⁴

At present, SC Voucher rates for full-day 4K vary by the urban-rural status of the provider and the provider's ABC Quality rating. As of the 2017–2018 program year, the fixed CERDEP per-pupil reimbursement, on an hourly basis, would have been higher than the SC Voucher hourly reimbursement rate for all provider types. All five of the illustrative private center-based providers that we interviewed also serve children receiving subsidies through SC Vouchers. Thus, for these providers and others like them, they may consider the reimbursement rates in the two programs as they enroll four-year-olds in their program. Given the relatively modest difference as of 2017–2018 (a minimum of about \$328 per child on an annual basis, as noted in Chapter 1), the incentive to serve children eligible for CERDEP over those who qualify for SC Vouchers may not be very salient from the providers' perspective. However, if CERDEP rates are raised in the future, in recognition of the need to cover a larger share of providers' costs, the

³³ As noted in Chapter 1, school districts operating CERDEP programs do not receive EIA funding.

³⁴ In California, providers in higher-cost counties in the state received higher reimbursement for the voucher-based CCDF child care subsidies than they did for the state-funded 4K program (as of 2009). The differential was sufficiently large that some private center-based programs terminated their contracts with the state to provide the 4K program in favor of serving children with vouchers (Karoly, 2007).

gap between CERDEP and SC Voucher reimbursement rates will become even larger and potentially more relevant for provider decisionmaking, especially for providers with lower quality ratings and in rural areas where SC Voucher reimbursements are lower.

Recommendations

This discussion has raised a number of policy issues regarding reimbursement of per-pupil costs for CERDEP providers. Many of the policy issues inherently involve tradeoffs that must be considered as part of a policymaking process. We therefore recommend a series of action steps for CERDEP stakeholders in South Carolina to take in support of a deliberate process to determine the potential costs and benefits of modifying the current CERDEP reimbursement mechanism.

Recommendation 1: Convene CERDEP stakeholders to recognize the variation in CERDEP costs and identify options for an adequate and equitable reimbursement policy. The SCDE and First Steps should hold one or more convenings with all CERDEP stakeholders—public and private providers, the EOC, and other relevant parties—to recognize the considerable variation in the estimated total per-pupil cost of delivering CERDEP and the potential strategies for instituting a reimbursement policy that incentivizes quality and ensures an adequate and more-equitable reimbursement of provider costs. The discussions should focus on the policy considerations referenced in the last section, such as which sources of cost variation should be incorporated in the reimbursement schedule, what the expectations are for the state’s share of CERDEP costs and how providers will fill any gap, and whether there is support for moving toward compensation parity for CERDEP teachers in public and private settings.

Recommendation 2: Conduct an analysis of the effects of changes in the reimbursement mechanism on the funding required with no change in enrollment. Guided by the discussions from the first recommendation, EOC should undertake an analysis of the implications of changes in the reimbursement mechanism for state funding of CERDEP with no change in enrollment. If a more-complex reimbursement approach is required, consider options to minimize administrative complexity, such as the use of existing formulas for K–12 funding to adjust for geographic differences in prices. Direct contracts with providers should be considered, as well. Similar to the approach taken in the National Academies report on *Transforming of the Financing of Early Care and Education*, it may be most feasible to phase in a new reimbursement structure over multiple years or gradually across districts given the increase in funding that would be expected to be required.

Recommendation 3: Provide technical assistance to CERDEP providers to ensure they access other sources of funding to cover their costs. To the extent that private providers, in particular, will be expected to cover a portion of their costs from other public or private sources, First Steps should offer technical assistance to providers to ensure those funds are accessed to the maximum extent possible. For example, our set of illustrative providers suggests that some private centers may not access all sources of reimbursement, such as CACFP, for which they qualify. They also may not always fully claim all available CERDEP reimbursement (e.g.,

extended day or summer). Technical assistance would be a valuable resource for private centers (and perhaps school districts) to support the financial viability of CERDEP providers and stable participation in the program. Together, SCDE and First Steps could collaborate on an integrated plan for providing technical assistance and consistent implementation of the support for both public and private CERDEP providers.

Recommendation 4: Collect information on provider costs and refine model-based cost estimates to support the redesign of reimbursement policy. Drawing on inhouse capacity or external expertise, SCDE, First Steps, and EOC should continue to collect information on provider costs and refine model-based cost estimates as reimbursement policies are redesigned. The validity of any reimbursement mechanism depends on the extent to which it is grounded in real-world information about how providers implement the program and the associated cost structure. An evidenced-based approach will encourage buy-in on the part of CERDEP providers and other stakeholders, as well as support from families with children and the public more generally. Likewise, information collected from providers should be periodically updated to account for changes in program delivery and the associated implications for costs.

Recommendation 5: Review alignment between CERDEP’s reimbursement rates and those for other publicly funded early childhood programs in the state. SCDE, First Steps, EOC and other state leaders should review the reimbursement rates for CERDEP and compare them with those of the other publicly funded early childhood programs in South Carolina that apply to 4K. This comparison is particularly relevant for private center-based CERDEP providers, as they also qualify to serve four-year-old children eligible for SC Vouchers. The review would determine the consequences of any current differences in the reimbursement rates across provider types and assess the potential consequences in terms of participation in the subsidized program. If changes are made in the future to the reimbursement rates for CERDEP, the consequences for the difference in the reimbursement rates with SC Vouchers or any other relevant subsidized 4K program should be taken into account.

Appendix A. CERDEP History and Program Features

In this appendix, we present a more detailed review of CERDEP than is included in the body of the report. This information will be useful to readers relatively unfamiliar with the program, or readers looking for a complete compilation of CERDEP information as of the publishing of this report. Specifically we cover the program’s history, key features and requirements, program enrollment, and evaluation literature.³⁵

Program History

CERDEP has its roots in the 2005 court ruling in *Abbeville v. the State of South Carolina*. The case began in 1993, when 40 South Carolina school districts (approximately 50 percent of the state’s districts at the time) challenged the state’s education-funding formula (Click and Hinshaw 2014; Weiler, 2007). Specifically, the districts argued that the formula, based primarily on local property taxes, disadvantaged rural and low-income communities. Over the next decade, the case travelled in and out of the state’s lower circuit courts and the state supreme court. Beginning in July 2003, arguments for an appeal of the case were heard in the Third Judicial Circuit Court, and in a 2005 opinion, the court ruled in favor of both the plaintiff districts *and* the state. In sum, the opinion articulated that there was “nothing wrong with the ‘inputs’ into education or the funding formula provided for local education, or the revenues allocated by the state for public education,” (Weiler, 2007, p. 9) *except* for the poor funding provided for early childhood education. While many saw the overall ruling as a loss for South Carolina public education,³⁶ given that no changes were made to the core K–12 funding formula, the ruling was a win for early childhood services. Following this ruling, the South Carolina General Assembly, the state’s legislative body, established the Child Development Education Pilot Program, a state funded early childhood education program in low-income districts in the state. The program was signed into state law in 2014 by the Read to Succeed Act and renamed CERDEP (South Carolina General Assembly, 2014). By law, the program must serve children from low-income families in

³⁵ This section draws heavily from the following citations: Friedman-Krauss et al.(2018), South Carolina Education Oversight Committee (2018), South Carolina Education Oversight Committee (2017); South Carolina Department of Education (2018a, 2018b), South Carolina First Steps (2018a, 2018b).

³⁶ The 2005 ruling was not the final ruling in the Abbeville case. In 2014, an additional ruling came down from South Carolina’s State Supreme Court stating that indeed the funding formulas were flawed, and failed to provide “minimally adequate” education—the court’s interpretation of the state constitution’s education clause—to all South Carolina children. Following this ruling, the South Carolina General Assembly was tasked with remedying the funding formula. As part of this effort, the Assembly conducted assessments of education facilities and buildings, and provided \$55.8 million for capital improvement projects in the plaintiff school districts. However, in November 2017, the 2014 ruling was vacated by the South Carolina State Supreme Court, meaning that the General Assembly was no longer responsible for altering school funding regulation. The primary argument for the new ruling was that the 2014 decision and the courts’ attempts to influence education-funding legislation was an overreach of judicial power (Gilreath, 2017).

the states' poorest districts, and focus on reading and school readiness. Specifically, the law mandates that programs must provide: “(1) a comprehensive, systemic approach to reading that follows the State Reading Proficiency Plan and the district’s comprehensive annual reading proficiency plan, (2) successful administration of the readiness assessment; (3) the developmental and learning support that children must have to be ready for school; (4) parenting education, including educating the parents as to methods that may assist the child; and (5) identification of community and civic organizations that can support early literacy efforts” (South Carolina Department of Education, 2018c).

CERDEP Features and Requirements

CERDEP is implemented using a mixed-delivery system with both public school districts and licensed private center-based providers able to serve eligible children. Oversight of the public district-based programs is provided by SCDE, while First Steps oversees implementation at private center-based providers. To be eligible to implement CERDEP districts must have a score of 70 percent or higher on the state poverty index.³⁷ These CERDEP-eligible districts may opt in or out of establishing CERDEP classrooms. Private providers may be located anywhere in the state, including in districts that do not meet the 70 percent poverty threshold. All children served by the program in either private or public settings must meet the criteria described below.

Table 1.1 in the body of the report presents a summary of CERDEP’s characteristics. The National Institute for Early Education Research (NIEER) has developed a set of quality indicators, or benchmarks, for state preK programs. In the 2017 State Preschool Yearbook, NIEER revised and released ten new benchmarks for quality (Friedman-Krauss et al., 2018):

- Benchmark 1. Early Learning and Development Standards
- Benchmark 2. Curriculum supports
- Benchmark 3. Teacher degree
- Benchmark 4. Teacher specialized training
- Benchmark 5. Assistant teacher degree
- Benchmark 6. Staff professional development
- Benchmarks 7 and 8. Maximum class size and staff-child ratio
- Benchmark 9. Screenings and referrals
- Benchmark 10. Continuous Quality Improvement System.

³⁷The poverty index is determined by the South Carolina Office of Revenue and Fiscal and is calculated based on the percentage of students and families in a district enrolled in Medicaid, Temporary Assistance for Needy Families, the Supplemental Nutrition Assistance Program, and Department of Social services Foster Care.

In the final two columns of Table 1.1, we indicate, where relevant, the corresponding NIEER standard and whether the CERDEP features meet the applicable benchmark (as determined by NIEER’s analysis of data from the 2016–2017 school year). As of 2016–2017, CERDEP met seven of ten quality metrics. In comparison to other states, meeting seven benchmarks puts South Carolina in the middle to the high end of the distribution in the 2016–2017 school year (the most recent with comprehensive data). Only three states—Michigan, Alabama and Rhode Island—meet all ten, while five states met nine. Ten states met fewer than half of the benchmarks.

To be eligible for CERDEP, children living within CERDEP-eligible districts must have reached age four on or before September 1 and meet one of the following criteria: (a) have family income at or below 185 percent of the federal poverty guidelines or (b) be eligible for Medicaid. Families can choose to apply for a CERDEP slot in either a district or a private provider.

Across both public and private settings, all CERDEP providers are required to be licensed by the Division of Early Care and Education in the South Carolina Department of Social Services. All programs must operate for at least 180 school days, five days a week, with at least 6.5 hours of instruction per day—or the traditional school year service option. In the 2017–2018 school year, the General Assembly made additional funds available to expand CERDEP offerings. CERDEP sites had the option of three different expansions which included: extended day—180 days per year and up to 8.5 hours of instruction per day; extended year—up to 220 days per year and 6.5–8.5 hours of instruction per day; and summer—up to 220 days per year total with 180 days of 6.5–8.5 hours during the school year and 40 days of a summer program with up to 8.5 hours of instruction per day.³⁸

In Table A.1, we present the distribution of chosen service options across the public school districts and private providers in the 2017–2018 school year. Approximately 15 and 30 percent of private providers and districts, respectively, administered one or more CERDEP classrooms with the traditional year. The majority of school districts and private providers (about 60 percent each) opted into the summer program option. The extended day and extended year were the least frequently adopted options. As discussed in more detail in the full report, each service option is associated with a different per-pupil reimbursement rate. For all service options, the teacher-child ratio within a classroom cannot exceed 1:10, and classrooms with more than 11 children are required to have at least one lead teacher and one instructional assistant.

³⁸ First Steps and SCDE defined the extended year and summer options differently. As defined by SCDE, the public districts had the option of between 6.5–8.5 hours of instruction per day for extended year, while the private providers who implemented the extended year option capped their hours at 6.5 (as defined by First Steps). Similarly, for the summer option, public schools had the option of between 6.5–8.5 hours of instruction for the 180 days of the school year, and 8.5 hours of instruction for the 40 day summer program. The private providers who implemented the summer option implemented only 6.5 hours only during the school year and 8.5 hours per day of summer instruction.

Table A.1. CERDEP Service Options for Participating Districts and Private Providers in 2017–18

Service Option	Districts		Private Providers	
	N	Percent	N	Percent
Traditional year	18	29.5	29	14.7
Extended day	0	0.0	32	16.2
Extended year	6	9.8	25	12.7
Summer	37	60.7	117	59.4

NOTES: There were a total of 197 private providers across the state and 61 districts implementing CERDEP in 2017–18. A total of 5 private providers implemented multiple service options (different classrooms implemented different service options). We count these providers in each of the service option totals they offered. Therefore, the totals across the private provider service options do not add up to a total of 197 providers or 100 percent.

SOURCES: South Carolina Department of Education (2018a) and South Carolina First Steps (2018a).

In 2017, South Carolina's Division of Early Care and Education in the Department of Social Services and the SCDE's Office of Early Learning and Literacy worked together to develop the South Carolina Early Learning Standards (SC-ELS; South Carolina Early Learning Standards Interagency Stakeholder Group, 2017). A number of other stakeholders, including First Steps and early childhood researchers at the University of South Carolina, were also involved in the effort. The document serves as universal guide for the state of the development and learning of young children ages birth to five. All CERDEP providers are required to align their programming with the standards. In addition to using the SC-ELS, programs are required to use an approved, research-based curriculum. In the 2017–2018 school year, the approved curricula for school districts were *Big Day in Pre-K* (published by Houghton Harcourt), *Creative Curriculum* (published by Teaching Strategies), *High Scope* (published by High Scope) *World of Wonders* (published by McGraw Hill), and the curriculum associated with Montessori programs. In the 2018–2019 school year, *InvestiGator Club* (published by Robert Leslie) was added to the list of approved curriculum for the districts. The approved curricula for the private centers was a smaller list, including only Creative Curriculum, the High Scope curriculum and Montessori. Private providers also had the option to seek approval with First Steps to use an alternative curricula

All programs assess children's literacy at the start and end of their 4K year. The districts were allowed to select among three different assessments to use: *Individual Growth and Development Indicators* (published by EL Labs, Inc.); the *Phonological Awareness Literacy Screening (PALS™) Pre-K* (published by IO Education); and *Teaching Strategies® GOLD™* (published by Teaching Strategies, LLC). First Steps requires all private providers to use *Teaching Strategies® GOLD*. CERDEP guidelines do not require programs to conduct other development or health screenings, but such services are recommended when districts and providers have the resources to do so.

The requirements for teacher qualifications differ across the public and private settings. In the school districts, all lead teachers are required to have a bachelor's degree and a South Carolina certification in early childhood education. Teacher's assistants must have a high school

degree or the equivalent, and have at least two years of experience working with children under five years old and must successfully complete or enroll in the Early Childhood Development Credential course within 12 months of being hired. In the private settings, teachers with bachelor’s degrees are preferred, but lead teachers are only required to have a two-year college degree in early childhood education, or a two-year college degree in another field with additional early childhood experience (such as having a CDA credential). In addition, all lead teachers without a 4-year degree must show evidence that they are enrolled in four-year teacher education program with an emphasis on early childhood education. Instructional assistants in the private setting are required to have a high school degree or equivalent and some early childhood experience.

Once hired, both CERDEP and Department of Social Services regulations require that all lead teachers complete 15 hours of professional development per year. Teachers have the option to earn these hours through professional development opportunities they seek out on their own (e.g. college course or online workshops) or by attending professional development organized by First Steps (for the private settings) and the school districts (for the public settings). The South Carolina Center for Child Care Career Development is a statewide organization that certifies and tracks CERDEP teachers’ professional development hours.³⁹

CERDEP providers also engage in regular program quality monitoring and oversight activities. The SCDE Office of Early Learning and Literacy (OELL) monitors the quality of the programs in the districts. During the annual visit, OELL staff use The Early Language and Literacy Classroom Observation is used to assess classroom quality. First Steps monitors program quality for the private providers using the Early Childhood Environment Rating Scale. The First Steps staff aims to visit all classrooms implementing CERDEP twice monthly; however, the frequency of visits varies by region. In addition to the CERDEP-mandated quality visits, the Division of Early Care and Education of the South Carolina Department of Social Services administers ABC Quality. Neither public nor private providers implementing CERDEP are required to participate, but both are eligible if they choose to do so. In addition to receiving an annual rating (from A+, or “Surpasses” quality standards, to C or “Meets” quality standards), participating programs receive a range of services, including staff professional development and quality assistance. In the 2016–2017 school year, over 90 percent of private CERDEP providers were enrolled in ABC Quality (EOC, 2017); the state does not collect comprehensive data on district enrollment in the QRIS.

CERDEP Enrollment

In Table A.2, we present information on the number of children served by CERDEP in the 2016–2017 and 2017–2018 school years. Specifically, these figures represent the number of CERDEP-

³⁹ In a forthcoming report, RAND that will offer more detailed review of the professional development offerings for CERDEP teachers in public and private settings.

funded slots for students.⁴⁰ In 2017–2018, 64 districts were CERDEP-eligible, and 61 opted into the program, approximately 74 percent of the states’ 82 total districts. Additionally, 197 private providers across the state implemented CERDEP in 2017–2018. In this school year, CERDEP served a total of 11,735 children; the large majority of children—about 83 percent—attended a CERDEP classroom in a public school district, with less than 2,000 children attending a CERDEP classroom at a private provider. Based on recent state estimates, the roughly 11,700 children served by CERDEP represented about 34 percent of all low-income children in the state at the time.⁴¹ The enrollment between 2016–2017 and 2017–2018 was fairly consistent, with only a slight drop in the number of students.

Reliable enrollment data from previous years is not available due to past errors in reporting. In 2006–2007, the first year of the program, only the 34 trial and plaintiff districts in their from the *Abbeville* case and the private providers in their catchment area were eligible to administer CERDEP. The number of eligible districts remained constant until the 2013–2014 school year, when the General Assembly broadened the eligibility requirements to all districts with a score of 75 percent or above on the state poverty index. This change increased the number of eligible districts to 51, also increasing the number of children served. Then in the 2014–2015 school year—the year in which the program was codified in to law—the eligible criteria was changed to include districts with a poverty index of 70 percent or less, increasing the number of eligible districts to 64 and again likely increasing the number of children served. As of the 2018–2019 school year, the criteria and number of eligible districts have not changed.

Table A.2. Funded CERDEP Slots in the 2016–2017 and 2017–2018 School Years by Provider Type

Type of Provider	2016–17		2017–18	
	Number of Slots	Percent	Number of Slots	Percent
Public CERDEP	9,806	83.2	9,789	83.4
Private CERDEP	2,170	18.4	1,946	16.6
Total CERDEP	11,784	100.0	11,735	100.0

SOURCE: Unpublished data from EOC.

The Evaluation Literature on CERDEP and State-Funded PreK in South Carolina

While there has never a causal evaluation of the effects of CERDEP on children’s literacy or school readiness outcomes, there is some evidence to suggest that state funded early childhood education in the state of South Carolina supports child development. In the 2004–2005 school

⁴⁰ Due to attrition and turnover throughout the school year, the number of children who spent at least 1 day in a CERDEP classroom may exceed these numbers. However, reliable data does not exist on the exact number of children who held these slots is not available.

⁴¹ Based on estimates of low-income children in the state from EOC (2018).

year (2 years before the pilot program that would become CERDEP was founded), South Carolina was included in a multi-state evaluation of state-funded preK programs (Wong, Cook, Barnett, and Jung, 2008). At that time, the Half-Day Child Development Program was the only state-funded preK in the state. It was funded through the EIA with additional support from First Steps to School Readiness. At this time (like the present), children were served in both private and public settings, with the majority of children enrolled in public district-based settings. Using a quasiexperimental research design that capitalized on the child eligibility age cut-off, the evaluation estimated that South Carolina preK had a positive and significant impact on children's print awareness, but not on their receptive vocabulary (Wong et al., 2008).

As described above, all CERDEP children are assessed on their literacy skills at the beginning and end of their 4K year. Descriptive analyses from 2016–2017 indicate that by the spring of that school year, over 75 percent of CERDEP children who took the cognitive assessments met or exceeded normal expectations for children in their age group (EOC, 2018). These analyses lack a research design that can confirm whether CERDEP caused children to be kindergarten-ready. However, the descriptive analyses do suggest that most children who participate in CERDEP enter kindergarten with skills on par with national norms.

Appendix B. 4K Reimbursement Mechanism Sources

Table B.1 documents the sources used to compile the reimbursement mechanism information on the state 4K programs listed in Table 1.5 of Chapter 1.

Table B.1. 4K Reimbursement Mechanism Sources

State	Source
Alabama	Alabama Department of Early Childhood Education, "Grants and Funding: About the First Class Pre-K Program," website, undated. As of November 27, 2018: https://children.alabama.gov/firstclass/prekgrants/
Florida	Florida Early Learning, "Voluntary Prekindergarten Program Payment Rate Schedule," undated. As of November 27, 2018: http://www.floridaearlylearning.com/Content/Uploads/floridaearlylearning.com/files/2014-2015%20VPK%20Funding%20Allocations.pdf
Georgia	Georgia Department of Early Care and Learning, "2018-2019 Georgia's Pre-K Rate/Per Child Estimate Chart," undated. As of November 27, 2018: http://dec.al.ga.gov/documents/attachments/2018-2019%20RateChart.pdf
	Georgia Department of Early Care and Learning, "Georgia's Pre-K Program 2018 - 2019 Pre-K Providers' Operating Guidelines," 2018. As of November 27, 2018: http://dec.al.ga.gov/documents/attachments/Guidelines.pdf
Kentucky	Kentucky Department of Education, "Preschool Staff Note: 2018-19 Preschool Grant Allotment System and Funding Rates," June 2018. As of November 27, 2018: https://portal.ksba.org/public/Meeting.aspx?PublicAgencyID=4388&PublicMeetingID=23380&AgencyTypeID=1
Mississippi	Mississippi Code, Title 37 Chapter 21, "Early Childhood Education Early Learning Collaborative Act," MS Code § 37-21-51, 2017. As of November 27, 2018: https://law.justia.com/codes/mississippi/2017/title-37/chapter-21/early-learning-collaborative-act/section-37-21-51/
North Carolina	North Carolina Division of Child Development and Early Education and North Carolina NC Pre-K, "North Carolina Pre-Kindergarten (NC Pre-K) Program Requirements and Guidance," 2018. As of November 27, 2018: https://ncchildcare.ncdhhs.gov/Portals/0/documents/pdf/N/NCPre-K_Program_Requirements_Guidance.pdf
South Carolina	South Carolina Department of Education, "CERDEP Guidelines," August 2018. As of November 27, 2018: https://ed.sc.gov/scdoe/assets/File/instruction/early-learning-literacy/CDEP/CERDEP%20guidelines%2018-19%20approved%20%2321464(1).docx
Tennessee	Tennessee Offices of Research and Education Accountability, "Tennessee's Pre-Kindergarten Program," 2009. As of November 27, 2018: http://www.comptroller1.state.tn.us/repository/RE/PreKHistory.pdf
	Tennessee Comptroller of the Treasury, "The Basic Education Program (BEP)," undated. As of November 27, 2018: https://www.comptroller.tn.gov/orea/bep

Table B.1. 4K Reimbursement Mechanism Sources, Continued

State	Source
West Virginia	West Virginia Department of Education, “Public School Support Program Total Estimated Allowance for Early Childhood Programs for the 2015-26 Year,” December 23, 2015. As of November 27, 2018: http://wvde.state.wv.us/oel/static/docs/total-estimated-allowance-early-childhood-programs.pdf
	West Virginia Department of Education Office of Early Learning, “2017 Annual Report,” 2018. November 27, 2018: http://static.k12.wv.us/oel/docs/spotlight/oel_2017annualreport.pdf
	West Virginia Legislature, West Virginia Code, “Chapter 18. Education. Article 9A. Public School Support,” §18-9A-1, 2017. As of November 27, 2018: http://www.wvlegislature.gov/WVCODE/Code.cfm?chap=18&art=9A#09A

Appendix C. Methods for Chapter 3 Cost Model

This appendix provides additional details on the methods for the cost model presented in Chapter 3. As noted in Chapter 3, we require assumptions about the staffing model in public and private settings, staff compensation, and other unit costs. We provide additional detail on assumptions in those three areas.

Staffing Model

Table C.1 summarizes the staffing model assumed for each of the four provider types, both staff at the classroom level and staff at the site level (and district level in the case of type A public providers). Staff are shown as full-time equivalent (FTE) positions. For the classrooms, all provider types in the public and private sectors are assumed to operate with one lead teacher, one assistant teacher, and a 0.25 FTE floater (who substitutes in when needed so that there are two staff per room at all times).

In the case of the Type A school district site, we assume a district-level ECE coordinator and a school principal, each of whom serves the larger 4K district or overall school population of students. We assume one district ECE coordinator for every 300 4K students in the district. Thus, for our baseline, we assume a half-time position. Only a share of the compensation costs for the district- and school-level administrators will be assigned as CERDEP costs as follows:

Table C.1. Assumed Baseline FTE Staffing Structure for CERDEP Cost Model, by Provider Type

Staff Role	Number of FTE Staff			
	Type A Public Site	Type B Private Center	Type C Private Center	Type D Private Center
Classroom staff, per classroom				
Lead teacher	1	1	1	1
Assistant teacher	1	1	1	1
Floater	0.25	0.25	0.25	0.25
Administrative staff, per site				
School principal	1	—	—	—
School/center ECE director	0.33	1	1	1
School/center ECE assoc. director	—	1	1	1
Office manager	0.33	1	1	1
Administrative assistant	0.33	1	1	1
Administrative staff, per district				
District ECE coordinator	0.50	—	—	—

SOURCE: Authors' assumptions.

NOTES: — = not applicable.

- **School district ECE coordinator:** The type A district-based site is assigned a portion of the compensation for the district ECE coordinator, where the share is based on CERDEP enrollment at the district site as a share of the overall 4K enrollment in the district. Given the type A assumption (see Table 3.2), with 40 CERDEP children at the site and 150 4K children in the district, the type A center will be assigned 27 percent of the (half-time) district ECE coordinator’s compensation.
- **School principal:** A similar logic is employed, except that we use the share of CERDEP enrollment relative to total site enrollment to assign a share of the principal’s salary. Using the type A case (see Table 3.2), this means 40 CERDEP students out of a total school enrollment of 450 students, which equates to a 9 percent share of the principal’s salary.

The type A school-level ECE director is assumed to manage the CERDEP 4K classrooms, with one such director for every 120 students. With a CERDEP enrollment of 40 in the baseline case, this means a one-third time position. The same assumption is made for the 0.33 FTE office manager and the 0.33 FTE administrative assistant for the 4K program. All of the compensation for these CERDEP-specific staff is assigned to CERDEP.

The administrative staffing model is somewhat different for the private centers (type B, C, and D in Table 3.2). Each center is assumed to have one FTE ECE director, associate director, office manager, and administrative assistant. As far as site-level costs, a share of their salary is attributed as CERDEP costs based on the enrollment of children in CERDEP rooms as a share of total enrollment. Given the assumptions for type B, C, and D private centers with 40 children in CERDEP rooms and 120 children overall, 33 percent of the salary for the site-level administrative staff is assigned as a CERDEP cost.

Staff Compensation

Table C.2 shows the assumed salary levels for the classroom and administrative staff positions in Table C.1. The salaries for the baseline model are shown the first column, with panel (a) pertaining to public programs and panel (b) to private programs (when parity is not assumed). The sensitivity analysis employs lower- and higher-cost salary assumptions corresponding to the second and third columns in Table C.2.

Table C.2. Assumed Occupational Salaries for CERDEP Cost Model, Baseline and Alternative Scenarios (2017 Dollars)

Staff Role	Baseline Median: \$ for 50 th Percentile	Lower Cost: \$ for 25 th Percentile	Higher Cost: \$ for 75 th Percentile	BLS Category (Code) / Notes
a. School-district programs				
Classroom staff				
Lead teacher	51,430	41,000	61,710	Kindergarten teachers, except special education (25-2012)
Assistant teacher / floater	20,920	18,050	25,070	Teacher assistants (25-9041)
Administrative staff				
District ECE coordinator	83,870	71,040	97,740	Education administrators, elementary and secondary school (11-9032)
School principal	83,870	71,040	97,740	Same as above
School ECE director	62,903	53,280	73,305	75% of school principal
Office manager	47,990	37,970	61,250	First-line supervisors of office and administrative support workers (43-1011)
Administrative assistant	26,230	20,840	31,900	Office clerks, general (43-9061)
b. Private Centers				
Classroom staff				
Lead teacher	23,060	18,650	30,770	Preschool teachers, except special education (25-2011)
Assistant teacher / floater	19,030	17,350	22,410	Childcare workers (39-9011)
Administrative staff				
Center director	53,280	43,091	62,903	Modified school ECE director (see text)
Center associate director	45,288	36,627	53,467	Modified school ECE director (see text)
Office manager	37,970	30,709	47,990	Modified school office manager (see text)
Administrative assistant	20,840	19,000	26,230	Modified school administrative assistant (see text)

SOURCE: Authors' assumptions and BLS (undated).

NOTES: BLS data for South Carolina are for May 2017. – = not applicable.

- Our salary assumptions are drawn from BLS data on occupational wages for South Carolina as of May 2017 (BLS, undated). We use the median estimates, where available, for the closest occupation code to each staff position. In contrast, for the lead teacher in a private center, we used the BLS occupational category for preschool teachers, which had a South Carolina median of about \$23,000, reflecting the lower salaries in private programs. Other notable assumptions are as follows: We use the BLS occupational category for teacher assistants for assistant teachers and floaters in public school programs, with a median South Carolina salary of almost \$21,000. For private programs,

we use the BLS category of child care workers for the assistant teacher and floater positions, with a median salary in South Carolina of about \$19,000.

- For the administrative staff positions in the type A public school programs, we use the BLS education administrators category for the district ECE coordinator and school principal, with a South Carolina median of nearly \$84,000. Because there is no category for a school ECE director, we assume their salary is 75 percent of the principal’s salary (or about \$63,000).⁴² The office manager and administrative assistant positions are based on the closest BLS occupational category (see Table C.2), with median salaries for South Carolina of about \$48,000 and \$26,000, respectively.
- For the administrative staff positions in private centers, there is no corresponding BLS occupational category. Thus, we modify the salaries assumed for public providers. Essentially, we take the salary at the 25th percentile of the public school salary distribution, based on the BLS data, and assume that value as the median (50th percentile) for the private providers. Thus, for example, the 25th percentile value for the school ECE director, of \$53,280, is assigned as the median salary for the private center director. This salary is consistent with the salaries recorded for the illustrative private center cases in Chapter 2.⁴³ The center’s associate director is assumed to have a salary equal to 80 percent of the director. A similar downward shift in the salary distribution is made for the office manager and administrative assistant, again with resulting salaries that are consistent with our observed Chapter 2 cases. A final assumption concerns the salary for an associate-level lead teacher for type D private providers. In that case, we assume the salary is 90 percent of the level for a private center bachelor’s-level teacher under Type C.

Other Unit Prices

Table C.3 displays the cost per unit of other cost components beyond classroom and administrative staff. Unit prices are organized according to major cost categories of professional development, classroom resources, meals, transportation, occupancy, and other operating costs. In most of these categories, there are cost subcomponents. Unit costs are denominated either on a per-staff, per-pupil, per-square foot, or per-site basis, as shown in the last column of Table C.3. These unit costs include associated staffing costs, as relevant, such as meal preparers in the case of food costs, and drivers in the case of transportation costs.

⁴² We do not have access to salary data across school districts, hence the need to make assumptions. For this salary item, with our assumptions, the per-child cost is about \$520. Thus, if the salary level were 10 percent higher or 10 percent lower, this would affect per pupil cost by about plus or minus \$50.

⁴³ We use the 50th percentile value for public programs as the 75th percentile for private programs, and impute a value for the 25th percentile based on the 25th/50th percentile ratio for private program lead teachers. Essentially, we use a downward-shifted salary distribution for private providers relative to public providers.

The baseline unit cost estimates in the first column of Table C.3 are based on the PCQC estimates for South Carolina (Office of Child Care, undated). Some adjustments were made based on the cost patterns for the illustrative providers (e.g., transportation cost per pupil was not included in the PCQC). Because the number of children, rooms, and sites are the same across provider types A to D, the baseline costs per pupil are the same regardless of provider context. That is also true under the alternative scenarios involving lower and higher costs. The one exception is the cost per pupil for professional development. As shown in Table C.3, the assumed costs under the baseline and alternative cost structures is on a per staff basis. Because of the slight differences in the assumed FTE staffing for the public provider (type A) versus the private providers (types B, C, and D), there is a small difference in the per-pupil cost for professional development across the public versus private settings.

Table C.3. Assumed Unit Prices for CERDEP Cost Model, Baseline and Alternative Scenarios (2017 Dollars)

Cost Component	Unit Cost			Unit
	Baseline	Lower Cost	Higher Cost	
Professional development	200.00	185.00	215.00	Per staff
Classroom materials and supplies				
Education equipment, curricula	100.00	92.50	107.50	Per pupil
Education supplies	50.00	46.25	53.75	Per pupil
Meals				
Food and food preparation	1,000.00	925.00	1,075.00	Per pupil
Kitchen supplies	50.00	46.25	53.75	Per pupil
Transportation	250.00	231.25	268.75	Per pupil
Occupancy ^a				
Rent, lease, mortgage	13.65	12.63	14.67	Per square foot
Utilities	2.19	2.03	2.35	Per square foot
Building insurance	1.34	1.24	1.44	Per square foot
Maintenance, repair, cleaning	2.85	2.64	3.06	Per square foot
Other operating costs				
Office supplies	30.00	27.75	32.25	Per pupil
Office equipment	22.00	20.35	23.65	Per pupil
Insurance (e.g., liability, accident)	75.00	69.38	80.63	Per pupil
Postage	24.00	22.20	25.80	Per pupil
Advertising	25.00	23.13	26.88	Per pupil
Telephone and internet	24.00	22.20	25.80	Per site
Audit	50.00	46.25	53.75	Per site
Fees and permits	8.33	8.33	8.33	Per site
Miscellaneous	15.00	13.88	16.13	Per pupil

SOURCE: Based on PCQC (Office of Child Care, undated).

^a For occupancy costs, the model assumes each CERDEP room is 1,280 square feet.

Appendix D. Data Collection Instruments

This appendix includes the two instruments used for the collection of CERDEP program and expenditure information for school districts and private centers.

RAND Corporation
Evaluation of the South Carolina Early Reading
Development and Education Program (CERDEP)

Interview with CERDEP School Districts

Provider ID: _____

Date of Interview: _____ / _____ / _____
 Month Day Year

Interview Start Time: _____ : _____ AM / PM

Interview Stop Time: _____ : _____ AM / PM

Interview Topics and Respondents

This interview will cover the topics listed in the table below. We also indicate potential documentation that may be useful to bring to the interview.

As indicated in the table, the program director may be the most knowledgeable person to respond to the first three topics. For the remaining topics, the best respondent will be the school or program staff member most familiar with program revenue sources and expenditures for the most recent completed fiscal year.

Topic	Potential Documentation	Likely Most Knowledgeable Respondent
Program structure (operating hours, days, and weeks per year; ages of children served; number of classrooms)	Program records	Program director
Child enrollment by age and part- or full-time status	Program records	Program director or director of admissions
Staffing structure	Program records	Program director
Sources of income/revenue	Annual audit, annual financial report, tax return	Chief financial officer, bookkeeper
Expenditures for the last completed fiscal year: staff wages and benefits, facilities, education materials, food service, transportation, other materials, supplies, and services	Annual audit, annual financial report, tax return	Chief financial officer, bookkeeper
Donated labor, space, and other materials	Program records	Chief financial officer, bookkeeper

QUESTIONNAIRE

A. GENERAL SCHOOL/CENTER INFORMATION

A1. What is the beginning and ending date of the district's most recent completed fiscal year?

START: Month _____ Year _____ END: Month _____ Year _____

This will be the reference program year in describing your CERDEP program (e.g., operating structure, enrollment, staffing, expenditures).

A2. How many sites (schools or other facilities) did your CERDEP program operate in the most recent completed fiscal year? Please list the name of each site.

SITE 1: _____

SITE 2: _____

SITE 3: _____

SITE 4: _____

SITE 5: _____

SITE 6: _____

SITE 7: _____

SITE 8: _____

We would like to collect some information about the CERDEP program in each site in your district (e.g., school or other facility). Please describe the program as it operated in the most recent completed fiscal year. [IF A RESPONSES FOR A GIVEN QUESTION IS THE SAME ACROSS SITES, FILL IN THE FIRST COLUMN AND NOTE "SAME" ACROSS THE REMAINING COLUMNS. USE AN ADDITIONAL PAGE IF MORE THAN 6 SITES.]

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6
A3. In what type of <u>building or facility</u> is the CERDEP program at this site located? <i>[SEE CODES ON THE BOTTOM OF THE PAGE.]</i>	_____ [code]	_____ [code]	_____ [code]	_____ [code]	_____ [code]	_____ [code]
A4. Is the CERDEP program at this site <u>accredited</u> by the National Association for the Education of Young Children (NAEYC) or by any other organization (e.g., American Montessori Society [AMS], Association for Montessori Internationale [AMI])? <i>[SELECT ONE RESPONSE.]</i>	YES, by _____ NO	YES, by _____ NO	YES, by _____ NO	YES, by _____ NO	YES, by _____ NO	YES, by _____ NO
A5. How many <u>days</u> of the week is the CERDEP program at this site at the site regularly <u>open</u> ?	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS
A6. What <u>hours of the day</u> is the CERDEP program at this site typically <u>open</u> Monday through Friday?	OPEN: _____ AM/PM CLOSE: _____ AM/PM	OPEN: _____ AM/PM CLOSE: _____ AM/PM	OPEN: _____ AM/PM CLOSE: _____ AM/PM	OPEN: _____ AM/PM CLOSE: _____ AM/PM	OPEN: _____ AM/PM CLOSE: _____ AM/PM	OPEN: _____ AM/PM CLOSE: _____ AM/PM
A7. How many <u>days</u> does the CERDEP program at this site operate during the <u>academic year</u> ?	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS
A8. If applicable, how many <u>days</u> does the CERDEP program at this site operate during the <u>summer months</u> ? <i>[ENTER ZERO IF THERE IS NO SUMMER PROGRAM.]</i>	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS	_____ DAYS

CODES FOR A3. SITE BUILDING OR FACILITY

A PUBLIC SCHOOL	1	A PUBLIC LIBRARY	6
A PRIVATE SCHOOL	2	ITS OWN BUILDING	7
A COLLEGE OR UNIVERSITY	3	A PLACE OF EMPLOYMENT OR BUSINESS.....	8
A COMMUNITY CENTER	4	MORE THAN ONE PLACE	9
A CHURCH, SYNAGOGUE OR OTHER PLACE OF WORSHIP	5	SOME OTHER PLACE, [SPECIFY]	10

Please continue to describe the program as it operated in the most recent completed fiscal year. *USE AN ADDITIONAL PAGE IF NEEDED.*

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6
A9. How many classrooms at this site serve 4K children with CERDEP funding?	_____ ROOMS	_____ ROOMS	_____ ROOMS	_____ ROOMS	_____ ROOMS	_____ ROOMS
A10. What is the enrollment of 4K CERDEP children in these CERDEP classrooms? <i>If enrollment levels varied across the year, please use the approximate enrollment as of November 15.</i>	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER
A11. What is the enrollment of 4K nonCERDEP children in these CERDEP classrooms?	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER
A12. How many other classrooms at this site serve 4K children <u>but do not use CERDEP funding</u> ?	_____ ROOMS	_____ ROOMS	_____ ROOMS	_____ ROOMS	_____ ROOMS	_____ ROOMS
A13. What is the enrollment of 4K children in these other classrooms?	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER
A14. Across the CERDEP and nonCERDEP classrooms (if any), what was the enrollment of children identified with special needs? By special needs, we mean children with a physical disability (including hearing or sight problems), mental disabilities, or emotional disabilities. (Identified means with an IEP or IFSP.)	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER
A15. For the most recent completed fiscal year, were there families who were waiting to enroll their preschool-age child but you could not admit at that time? That is, did you have a waiting list children? <i>[SELECT ONE RESPONSE.]</i>	YES NO → A17	YES NO → A17	YES NO → A17	YES NO → A17	YES NO → A17	YES NO → A17
A16. For the most recent completed fiscal year, what was the maximum number of 4K children that were on your waiting list?	_____ NUMBER → A18	_____ NUMBER → A18	_____ NUMBER → A18	_____ NUMBER → A18	_____ NUMBER → A18	_____ NUMBER → A18
A17. For the most recent completed fiscal year, what was the maximum number of 4K slots that were unfilled?	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER	_____ NUMBER

The following questions refer to the 4K sites across your district during the most recent completed fiscal year.

A18. Across the sites in your district with 4K programs, do any of your sites offer the following programs for 4K children?
By full-day program, we mean programs operating more than 30 hours per week and at least five days per week.

[SELECT ALL THAT APPLY.]

- CERDEP funded full-day program..... 01
- CERDEP funded extended-day program 02
- CERDEP funded summer program 03
- CERDEP funded extended-year program 04
- District or public school funded full-day 4K program 05
- District or public school funded part-day 4K program..... 06
- Head Start sponsored full-day program..... 07
- Head Start sponsored part-day program 08
- Other full-day 4K program (e.g., paid for by parent fees or other subsidies)..... 09
- Other part-day 4K program (e.g., paid for by parent fees or other subsidies) 10
- Part day extended care before, during, or after the 4K program 11
- Summer camp programs for preschoolers 12
- Evening care..... 13
- Weekend care 14
- Sick care..... 15
- 24-hour care 16
- Bilingual program..... 17
- Other (specify: _____)..... 18

A19. Across the sites in your district with 4K programs, please indicate whether any of the programs provide the services listed below. Not all programs would be expected to provide all of these services. *[SELECT ALL THAT APPLY.]*

- Vision screening 01
- Hearing screening 02
- Dental screening..... 03
- Measurement of height and weight annually 04
- Speech screening..... 05
- Speech services 06
- Developmental assessments..... 07
- Counseling services for children and parents (other than routine parent conferences) 08
- Referral for parents to social services such as obtaining food stamps, financial aid, housing, or medical care 09
- Transportation services from home to the program..... 10
- Transportation services from the program to home..... 11
- Meals for children provided by the program 12
- Other (specify): _____..... 13

B. STAFFING POLICY, QUALIFICATIONS, AND BENEFITS

The questions in this section refer to the staffing policy and staffing benefits for the CERDEP sites across your district as they applied during the most recent completed fiscal year.

Do you use different titles than teacher, assistant teacher or aide, teacher-director, and administrative director for the staff positions in your district?

Teacher: _____

Assistant Teacher/Aide/Instructional Assistant/Floater: _____

Teacher-Director: _____

Administrative Director: _____

Other (Specify _____)

Are there any other regular staff who work directly with the CERDEP children (e.g., music teacher, swim instructor, van drivers, nurse)? If yes, please indicate their titles. *(Include these titles together as 'other' in the following questions.)*

B1. For the following categories of staff, do you provide any in-service training or require continuing education (other than staff meetings), either at or away from the program, beyond the professional development provided and paid for by CERDEP? *[SELECT ALL THAT APPLY.]*

- Teachers..... 1
- Assistant teachers/aides..... 2
- Teacher-directors 3
- Administrative directors 4
- Other..... 5

B2. Which of the following do you provide for your paid full-time teachers and assistant teachers or aides, and to your part-time employees? *[SELECT ALL THAT APPLY IN EACH ROW.]*

	FULL-TIME TEACHERS	PART-TIME TEACHERS	ASST. TEACHERS
a. Reduced child care fees	01	02	03
b. Compensation for overtime	01	02	03
c. At least partially paid retirement plan	01	02	03
d. Fully paid health insurance	01	02	03
e. Partially paid health insurance	01	02	03
f. Paid health insurance for dependents	01	02	03
g. At least partially paid dental insurance	01	02	03
h. Paid sick leave or personal leave	01	02	03
i. Paid vacations	01	02	03
j. Paid to attend staff meetings	01	02	03
k. Paid to attend professional development	01	02	03

B3. What is your definition for part-time for defining benefits?

_____ Hours/Week = Part time

_____ No distinction for benefits

B4. Now I would like to ask you about staff qualifications for defined as classroom teachers (lead or co-lead teachers).

NUMBER IN CERDEP CLASSROOMS	NUMBER IN OTHER 4K CLASSROOMS
-----------------------------------	-------------------------------------

a. How many classroom lead/co-lead teachers have a four-year college degree or graduate degree and are certified in early childhood education?

b. How many classroom lead/co-lead teachers have a four-year college degree or graduate degree but are not certified in early childhood education?

c. How many classroom lead/co-lead teachers have at most a two-year associate's degree in early childhood education, child development, or a related field?

d. How many classroom lead/co-lead teachers have none of the above degrees/credentials but have a Child Development Associate (CDA) credential?

e. How many classroom lead/co-lead teachers have none of the above degrees/credentials?

CHECK: Total number of teachers in CERDEP and other classrooms should sum to all lead or co-lead teachers.

B5. Do teachers and/or assistant teachers/aides in your program work under a collective bargaining agreement negotiated by a union? [SELECT ONE RESPONSE.]

YES 1

NO 2

C. REVENUE SOURCES FOR MOST RECENT FISCAL YEAR**REVENUE SOURCES**

C1. For the most recent completed fiscal year, please indicate if you had any revenue from each of the following public or private sources for your sites with CERDEP classrooms. [SELECT ONE RESPONSE PER ROW.]

Public Sources

	YES	NO	DON'T KNOW
a. CERDEP 4K new provider funds for equipment and supplies	1	2	D
b. CERDEP 4K per child reimbursement for instruction	1	2	D
c. CERDEP 4K per child reimbursement for transportation	1	2	D
d. CERDEP 4K funds for program expansion	1	2	D
e. Education Improvement Act Child Development Program (EIA 4K) funds	1	2	D
f. Head Start or Migrant Head Start grant funds	1	2	D
g. U.S.D.A. Child Care Food Program funds	1	2	D
h. Individual with Disabilities Act (IDEA) Part B or Part C funds	1	2	D
i. District Title I funds	1	2	D
j. Funds from school district / LEA other than shown in (a) to (i)	1	2	D
k. Program service fees paid by SC Vouchers	1	2	D
l. Municipal, state, or federal gov't contributions other than shown in (a) to (k) (specify): _____	1	2	D

Private Sources

m. Program service fees paid by parents	1	2	D
n. Monetary contributions from sponsoring agency	1	2	D
o. Subsidies/contributions from local community groups (United Way, Kiwanis, etc.)	1	2	D
p. Monetary contributions from parents' employers	1	2	D
q. Special events and fund raising efforts	1	2	D
r. Private donations	1	2	D
s. Investment income	1	2	D
t. Other private revenue source (specify): _____	1	2	D

D. ANNUAL EXPENDITURES FOR MOST RECENT FISCAL YEAR

We would like to know how much your district spent on each major category of direct and indirect expenses to operate CERDEP classrooms in order to calculate your total CERDEP costs. **All expenditures should be for the most recent completed fiscal year** (referenced in A1).

We begin with expenditures specific to the classrooms with CERDEP funding (D1 – D2) or for all 4K classrooms (CERDEP and other 4K classrooms; D3 – D5). Use the table on the next page to record the following:

D1. Wages and Salaries for CERDEP Classroom Staff. In the last completed fiscal year, what was the total expenditure on wages and salaries (before deductions for taxes or employee benefit contributions) for all CERDEP classroom staff including lead teachers, assistant teachers, aids, floaters, or other specialized staff working with children in the classroom? If staff are shared with other non-CERDEP classrooms in your program (e.g., art, music, or physical education teacher), please prorate their wages/salary based on the share of their time working with children in the CERDEP classrooms. Amounts may be recorded in aggregate for D1 or by specific staff or staff categories in the additional rows under D1.

D2. Non-wage Benefits for CERDEP Classroom Staff. What was the program's total expenditure on non-wage employee benefits for the staff in the CERDEP classrooms who were included in D1? Include only the employer's contribution. This category includes the types of expenses listed below:

- FICA or equivalent (only the employer's matching amount; employee's share should be in D1)
- Unemployment insurance (total federal and state insurance costs)
- Worker's Compensation
- Disability Insurance (net of any contributions by employees)
- Health/Dental/Vision Insurance (net of any contributions by employees)
- Life Insurance for Staff (net of any contributions by employees)

You may need to estimate this amount based on the ratio of non-wage benefits to salaries for your program as a whole.

D3. Wages and Salaries for 4K Program Staff. In the last completed fiscal year, what was the total expenditure on wages and salaries (before deductions for taxes or employee benefit contributions) for all staff who support the 4K classrooms (CERDEP and other 4K classrooms) including 4K administrative directors, curriculum directors, other 4K administrative staff, 4K food preparation staff, 4K bus or van drivers, and other non-contract 4K employees? Exclude classroom staff already accounted for in D1.

D4. Non-wage Benefits for 4K Program Staff. What was the program's total expenditure on non-wage employee benefits for the 4K program staff included in D3? *Refer to D2 for the types of non-wage benefits to include. As with D2, you may need to estimate this amount based on the ratio of non-wage benefits to salaries for your program as a whole.*

D5. 4K Staff Education/Training Costs. What was the total expenditure for the year for all 4K teaching and administrative staff for their education or training? Include the following items:

- | | |
|---|---|
| • Fees for workshops or non-college courses | • Offsite fees at college or university |
| • Conferences | • State professional or public training |
| • In-service on site | • Travel allowances (for training only) |

Use this grid to fill in the information requested on the prior page for D1 to D5 for the CERDEP classrooms/4K program at each site in your district or for all CERDEP classrooms/4K programs combined across sites, aggregated to the district level.

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	OR	ALL SITES COMBINED
D1. Wages and salaries for CERDEP classroom staff								
D2. Non-wage benefits for CERDEP classroom staff								
D3. Wages and salaries for all 4K program staff (not in D1)								
D4. Non-wage benefits for all 4K program staff								
D5. All 4K staff education and training								

The next set of expenditures are for the 4K program as a whole at each site, both CERDEP classrooms and any other 4K classrooms. These are expenditures specifically and exclusively for the 4K program at each site that can be readily identified. Please exclude any expenditures you can identify that did not support the 4K classrooms (e.g., those supporting only younger or older children at each site). We will record later any costs that apply site-wide (i.e., school-wide) to all ages, including 4K classrooms, but which cannot be easily segregated to the 4K classrooms (e.g., general administrative staff such as a school principal). **Again, all expenditures should be for the most recent completed fiscal year** (referenced in A1).

Use the table on the next page to record the following:

- D6. 4K Sub-Contractors. What was your total expenditure on 4K contract workers for the year (i.e., people who work for you on a more irregular basis for whom you do not pay benefits)? You may have contracted out work for 4K substitutes or specialized 4K classroom teachers (e.g., music or art).
- D7. 4K Food Service. What was the cost of food services for the 4K classrooms, excluding personnel costs, for the last fiscal year? Do not include donated food or food reimbursements.
- D8. 4K Transportation. What was the cost of transportation services for children in the 4K classrooms, excluding personnel costs, for the last fiscal year?
- D9. 4K Classroom Materials and Supplies. What was the cost of materials and supplies for use in the 4K classrooms for the last fiscal year?
- D10. Other 4K Expenditures. What was the cost of any other expenditures that were exclusively tied to the 4K classrooms for the last fiscal year? Please specify the types of expenditures included. These might include field trips, marketing costs, or other specific 4K expenditures not already listed.

If any of the expenditures for items D6 to D9 cannot be separately identified for 4K classrooms, the second grid on the next page provides a place to record expenditures at the site level in those categories.

Use this grid to fill in the information requested on the prior page for D6 to D10 for the 4K classrooms at each site in your district or for all 4K classrooms combined across sites, aggregated to the district level. If you are not able to separately identify expenditures in any of D6 to D9 for 4K classrooms only, provide the expenditure in that category at the site level in the second grid below.

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	OR	ALL SITES COMBINED
D6. 4K subcontractors								
D7. 4K food service								
D8. 4K transportation								
D9. 4K classroom materials and supplies								
D10. Other 4K expenditures, specify _____ _____ _____								

Use this grid to fill in D6 to D9 at the site level if the expenditures specifically for 4K classrooms is not known. A share of these site-level costs will be allocated to the 4K/CERDEP classrooms.

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	OR	ALL SITES COMBINED
D6S. Site-level subcontractors								
D7S. Site-level food service								
D8S. Site-level transportation								
D9S. Site-level classroom materials and supplies								

The final set of expenditures are for all other site-level expenditures that support 4K classrooms and other classrooms at the same site. These are typically thought of as general overhead expenditures that are shared across all classrooms. This category also includes any district-level overhead expenditures that support all 4K classrooms in the district. We will allocate a portion of these site- and district-level expenditures to the 4K/CERDEP classrooms. **As before, all expenditures should be for the most recent completed fiscal year** (referenced in A1). Use the table on the next page to record the following site-level costs:

D11. Facilities Cash Costs. What were your total facilities costs for the last fiscal year, including the following:

- Rent or mortgage
- Utilities (gas & electric, water, trash removal)
- Cleaning, repair, and maintenance (e.g., janitorial, buildings and grounds, etc.)

D12. Insurance. What was your total cost of insurance last fiscal year? Include all forms of insurance: for the facility, which might include liability, fire, theft, flood, earthquake; vehicle; accident for children, staff or others; child abuse, etc. Do not include health insurance or any insurance programs, which are part of employee benefits.

D13. Other Operating Costs. For site-level costs not already captured in earlier line items, we would like to capture the annual cost of supplies, materials, and equipment. For our purposes we will use the following definitions:

- SUPPLIES are consumables that are used up right away.
- MATERIALS are replaced within a year.
- EQUIPMENT is something that is repaired, lasts more than 1 year and costs over \$100.00.

As part of operating costs we want to estimate the cost of equipment used during the year. The best estimate is the total depreciation costs charged off for the fiscal year.

These other costs may be recorded in aggregate or itemized to reflect categories A to L below. (It is fine if some categories are combined). If only a total is provided, please add a check mark in the final column in the grid below to indicate which types of expenditures are include in the other operating costs.

A.	Non-classroom supplies (e.g., office, facilities, maintenance)	
B.	Non-classroom materials (e.g., items with short lifetime, not depreciated)	
C.	Equipment rental and maintenance	
D.	Depreciation on equipment (e.g., purchased items with longer lifetime, e.g., computer)	
E.	Travel (including business mileage)	
F.	Telephone and postage	
G.	Marketing, advertising, public relations	
H.	Photocopying, printing, publications	
I.	Licensing and fees	
J.	Dues and subscriptions	
K.	Interest payments and bank service charges	
L.	Miscellaneous (specify): _____	

D14. District-Level Dedicated 4K Expenditures. Were there any district-level expenditures specifically to support the 4K program at the CERDEP sites? Include for example, the wages and salaries, as well as benefits, of a district-level 4K program director or other district-level staff who administer the CERDEP/4K program.

Use this grid to fill in the information requested for D11 to D13 for the site-level administrative overhead expenditures for staff and other resources that support 4K classrooms and all other classrooms at each site in your district or for all 4K classrooms combined across sites, aggregated to the district level. Also record any district-level 4K program expenditures in D14.

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	OR	ALL SITES COMBINED
D11. Site-level facilities cost								
D12. Site-level insurance cost								
D13. Other site-level cost TOTAL or itemize below								
A. Non-classroom supplies								
B. Non-classroom materials								
C. Equipment rental and maintenance								
D. Depreciation on equipment								
E. Travel								
F. Telephone and postage								
G. Marketing, advertising, PR								
H. Photocopying, printing, publications								
I. Licensing and fees								
J. Dues and subscriptions								
K. Interest payments / bank fees								
L. Miscellaneous (specify): _____ _____								

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	DISTRICT
D14. District-level 4K program expenditures							

A final set of questions concerns the use of any space, food, supplies/materials, equipment, or labor for the CERDEP classrooms that were donated or otherwise subsidized. **As before, the reference is to resources used in the most recent completed fiscal year (referenced in A1).**

Use the table on the next page to record a yes/no response to the following for each site or for the district as a whole:

- D15. Donated Facilities. In the last fiscal year did the CERDEP classrooms receive any subsidy/donation for facilities-related costs (e.g., rent, utilities, or costs for services such as janitorial, maintenance, repairs)?
- D16. Donated Food: In the last fiscal year did the CERDEP classrooms receive any donated food?
- D17. Donated Supplies and Materials. In the last fiscal year did the CERDEP classrooms receive any donated supplies and materials?
- D18. Donated Equipment. In the last fiscal year did the CERDEP classrooms receive any donated equipment?
- D19. Donated Labor. In the last fiscal year did the CERDEP classrooms make use of regular volunteers in the classroom, both parent and non-parent volunteers (e.g., unpaid interns) who work regularly at least 4 hours per month?

Thank you for all your help! The information you have provided will be invaluable to our study.

Use this grid to fill in the information requested for D15 to D19. For each site, or for all sites combined, indicate if any of the resources for the CERDEP classrooms were donated or otherwise partially or fully subsidized.

	SITE 1	SITE 2	SITE 3	SITE 4	SITE 5	SITE 6	OR	ALL SITES COMBINED
D15. Full or partially subsidized facilities cost (rent or utilities)?	YES	YES	YES	YES	YES	YES		YES
	NO	NO	NO	NO	NO	NO		NO
D16. Donated food?	YES	YES	YES	YES	YES	YES		YES
	NO	NO	NO	NO	NO	NO		NO
D17. Donated supplies and materials?	YES	YES	YES	YES	YES	YES		YES
	NO	NO	NO	NO	NO	NO		NO
D18. Donated equipment?	YES	YES	YES	YES	YES	YES		YES
	NO	NO	NO	NO	NO	NO		NO
D19. Donated (volunteer) labor?	YES	YES	YES	YES	YES	YES		YES
	NO	NO	NO	NO	NO	NO		NO

E. FOR INTERVIEWER'S USE ONLY, AFTER COMPLETION OF THE INTERVIEW

E1. On a scale from 1 (poor) to 5 (very good) how do you rate the respondent's articulateness?

Poor				Very Good
1	2	3	4	5

E2. *Assessment of the Quality of Financial Data Collected:* Please evaluate the quality of the expenditure data you have collected. Which of the following assessments best describes the quality?

Poor. The program does not have complete records for the whole fiscal year. in many cases we had to make year end estimates from incomplete monthly estimates and recollection, about which I am not very confident.....1 → GO TO D3

Reasonably Good. For instance, year-end cost summaries were not available, but I collected monthly data from well maintained records and I am reasonably confident about estimates we had to construct from recollection.....2

Very good. The program maintains complete records and most data was collected from these records3

E3. If you answered (1) to E2, circle the subcategories of data which are most problematic. If all were problematic, circle them all.

Wages and hours of staff..... 1

Personnel costs 2

Occupancy costs 3

Food service costs..... 4

Operating costs 5

In-kind donations 6

Other (specify _____) 8

Provider ID: _____

RAND Corporation
Evaluation of the South Carolina Early Reading
Development and Education Program (CERDEP)

Interview with Private Center-Based Providers

Provider ID: _____

Date of Interview: _____ / _____ / _____
 Month Day Year

Interview Start Time: _____ : _____ AM / PM

Interview Stop Time: _____ : _____ AM / PM

Interview Topics and Respondents

This interview will cover the topics listed in the table below. We also indicate potential documentation that may be useful to bring to the interview.

As indicated in the table, the program director may be the most knowledgeable person to respond to the first three topics. For the remaining topics, the best respondent will be the school or program staff member most familiar with program revenue sources and expenditures for the most recent completed fiscal year.

All information listed below should pertain to the most recent completed fiscal year.

Topic	Potential Documentation	Likely Most Knowledgeable Respondent
Program structure (operating hours, days, and weeks per year; ages of children served; number of classrooms)	Program records	Program director
Child enrollment by age and part- or full-time status	Program records	Program director or director of admissions
Staffing structure	Program records	Program director
Sources of income/revenue	Annual audit, annual financial report, tax return	Finance director, bookkeeper
Expenditures for the last completed fiscal year: staff wages and benefits, facilities, education materials, food service, transportation, other materials, supplies, and services	Annual audit, annual financial report, tax return	Finance director, bookkeeper
Donated labor, space, and other materials	Program records	Finance director, bookkeeper

QUESTIONNAIRE

A. GENERAL SCHOOL/CENTER INFORMATION

In this first section, we ask questions about the general structure and features of your program. The first group of questions has to do with how the program is organized.

A1. What is the beginning and ending date of the program's last complete fiscal year?

START: Month _____ Year _____ END: Month _____ Year _____

This will be the reference program year in describing your CERDEP program (e.g., operating structure, enrollment, staffing, expenditures).

A2. I'd like to begin by asking about the structure and organization of your program. Is your program non-profit, for-profit, or public? [*SELECT ONE RESPONSE.*]

NON-PROFIT 1
 FOR-PROFIT 2
 PUBLIC 3

A3. In what type of building or facility is your program located? Is it located in a religious building, school, workplace, or in its own building? [*SELECT ONE RESPONSE.*]

A PUBLIC SCHOOL 1
 A PRIVATE SCHOOL 2
 A COLLEGE OR UNIVERSITY 3
 A COMMUNITY CENTER 4
 A CHURCH, SYNAGOGUE OR OTHER PLACE OF WORSHIP 5
 A PUBLIC LIBRARY 6
 ITS OWN BUILDING 7
 A PLACE OF EMPLOYMENT OR BUSINESS 8
 MORE THAN ONE PLACE 9
 SOME OTHER PLACE, [SPECIFY] _____ 10

A4. Is your program part of a local multi-site organization or chain, a national multi-site organization or chain, or is it independently owned and operated? [*SELECT ONE RESPONSE.*]

LOCAL MULTI-SITE ORGANIZATION OR CHAIN 1
 NATIONAL MULTI-SITE ORGANIZATION OR CHAIN 2
 NOT A MULTI-SITE ORGANIZATION 3

A5. Is your program independent or is it sponsored by another organization, such as a church or community agency? [*SELECT ONE RESPONSE.*]

INDEPENDENT 1
 SPONSORED 2

➔ GO TO A7

A6. Now I'd like to ask about sponsorship of your program. By sponsorship, we mean an organization that provides governance and/or financial support for your program. Is your program sponsored by a....*[SELECT ONE RESPONSE PER ROW.]*

	YES	NO	DON'T KNOW
a. Public school / Board of Education?	1	2	D
b. Church or religious group?	1	2	D
c. Parochial private school?	1	2	D
d. Non-parochial private school?	1	2	D
e. College or university?	1	2	D
f. Private company or individual?	1	2	D
g. Social service organization or agency? [SPECIFY] _____	1	2	D
h. Non-government community organization (e.g., YMCA)? [SPECIFY] _____	1	2	D
i. State or local government? [SPECIFY] _____	1	2	D
j. Some other type of sponsoring agency? [SPECIFY] _____	1	2	D

A7. Is your program/center accredited by the National Association for the Education of Young Children (NAEYC) or by any other organization (e.g., American Montessori Society [AMS], Association for Montessori Internationale [AMI])? *[SELECT ONE RESPONSE.]*

YES, ACCREDITED BY (specify): _____ ... 1
NO ACCREDITATION.....2

A8. Do you have a grant through Head Start (including Early Head Start) or Migrant Head Start? *[SELECT ONE RESPONSE.]*

YES 1
NO2

A9. Do you accept children with SC Vouchers (i.e., government assistance) to pay for their child care? *[SELECT ONE RESPONSE.]*

YES 1
NO2

A10. How many days of the week is your program regularly **open**?

NUMBER OF DAYS: _____

A11. What hours of the day is your program typically **open** Monday through Friday?

OPENS: _____ AM/PM CLOSSES: _____ AM/PM

A12. How many weeks of the year is your program **closed**? (Enter 0 if the program is open 52 weeks a year. Please provide a copy of the school/center calendar with days off.)

NUMBER OF WEEKS: _____

A13. What is the legal maximum number of children which can be present in your program at one time according to your license? That is, what is the legal capacity of your program?

Maximum number of infants (Under 24 months old):

Maximum number of toddlers (24-35 months old):

Maximum number of preschool-age children (3-5 years old):

Maximum number of school-aged (attending K or higher):

*Maximum total number of children:

The following questions refer to the program year that corresponds to your most recent fiscal year.

A14. For the most recent completed fiscal year, how many hours per day did you consider to be (mark "NA" if option is not available):

a. A part day for a typical preschooler? _____ hours

b. A full day for a typical preschooler? _____ hours

c. A maximum day for a typical preschooler? _____ hours

A15. For the most recent completed fiscal year, please indicate the number of classrooms in your program by age group and CERDEP status (using the part, full, and maximum day hours recorded in A14). indicate separately rooms used to operate two or more sessions per day versus rooms used for only one session per day.

Type of classrooms	Number with 1 session per day	Number with 2 sessions per day
4K classrooms with children funded by CERDEP		[cell should be zero]
4K classrooms with children funded by other sources		[cell should be zero]
3K classrooms		
Toddler classrooms		
Infant classrooms		
Mixed age classrooms, specify _____		
Mixed age classrooms, specify _____		
Mixed age classrooms, specify _____		

A16. For the most recent completed fiscal year, please indicate the total enrollment of preschool-age children in your program by age group and CERDEP status (using the part, full, and maximum day hours recorded in A14). If enrollment levels varied across the year, please use the approximate enrollment on or about November 15. If enrollment for an individual child varied across the week, categorize the child by the type of enrollment that applied for the majority of the days during the week.

Type of enrollment	Number of infants to 3-year-olds	Number of 4-year-olds (4K)	Of the 4-year-olds, the number funded by CERDEP
Number of part-day enrollees			[cell should be zero]
Number of full-day enrollees			
Number of extended-day enrollees			
Number of summer enrollees			
Number of extended-year enrollees			

A17. For the most recent completed fiscal year, how many identified children with special needs were enrolled in the CERDEP classrooms? By special needs, we mean children with a physical disability (including hearing or sight problems), mental disabilities, or emotional disabilities. (Identified means identified by parents and center staff, and possibly, but not necessarily, by an outside agency.)

NUMBER OF SPECIAL NEEDS CHILDREN ENROLLED _____

A18. For the most recent completed fiscal year, were there families who were waiting to enroll their four-year-olds but you could not admit at that time? That is, did you have a waiting list of children for your 4K program? *[SELECT ONE RESPONSE.]*

YES.....1

NO.....2 → GO TO A20

A19. For the most recent completed fiscal year, what was the maximum number of four-year-old children that were on your waiting list?

MAXIMUM NUMBER OF 4-YEAR-OLD (4K) CHILDREN ON WAITING LIST _____ → GO TO A21

A20. For the most recent completed fiscal year, what was the maximum number of four-year-old slots that were unfilled?

MAXIMUM NUMBER OF 4-YEAR-OLD (4K) SLOTS THAT WERE UNFILLED _____

A21. What are the programs you offer in this program for preschool-age children? By full-day program, we mean programs operating more than 30 hours per week and at least five days per week. *[SELECT ALL THAT APPLY.]*

- CERDEP funded full-day program..... 01
- CERDEP funded extended-day program 02
- CERDEP funded summer program 03
- CERDEP funded extended-year program 04
- District or public school funded full-day program..... 05
- District or public school funded part-day program 06
- Early Head Start / Head Start sponsored full-day program 07
- Early Head Start / Head Start sponsored part-day program..... 08
- Other full-day program (e.g., paid for by parent fees or other subsidies) 09
- Other part-day program (e.g., paid for by parent fees or other subsidies) 10
- Part day extended care before, during, or after the preschool program..... 11
- Summer camp programs for preschoolers 12
- Evening care..... 13
- Weekend care 14
- Sick care..... 15
- 24-hour care 16
- Bilingual program..... 17
- Other (specify: _____)..... 18

A22. Please indicate whether your program provides each of the services listed below. Not all programs would be expected to provide all of these services. *[SELECT ALL THAT APPLY.]*

- Vision screening 01
- Hearing screening 02
- Dental screening..... 03
- Measurement of height and weight annually04
- Speech screening..... 05
- Speech services 06
- Developmental assessments..... 07
- Counseling services for children and parents (other than routine parent conferences) 08
- Referral for parents to social services such as obtaining food stamps, financial aid, housing, or medical care 09
- Transportation services from home to the program..... 10
- Transportation services from the program to home..... 11
- Meals for children provided by the program 12
- Other (specify: _____).....13

B. STAFFING POLICY, QUALIFICATIONS, AND BENEFITS

In this next section I will ask general questions about your staffing policy and staffing benefits.

Do you use different titles than teacher, assistant teacher or aide, teacher-director, and administrative director for the staff positions in your center?

Teacher: _____

Assistant Teacher/Aide/Instructional Assistant/Floater: _____

Teacher-Director: _____

Administrative Director: _____

Other (Specify _____)

Are there any other regular staff who work directly with children (e.g., music teacher, swim instructor, van drivers, nurse)? If yes, please indicate their titles. *(Include these titles together as 'other' in the following questions.)*

B1. For the following categories of staff, do you provide any in-service training or require continuing education (other than staff meetings), either at or away from the program, beyond what is required by licensing regulations or what is provided by First Steps? *[SELECT ALL THAT APPLY.]*

- Teachers..... 1
- Assistant teachers/aides..... 2
- Teacher-directors 3
- Administrative directors 4
- Other..... 5

B2. Which of the following do you provide for your paid full-time teachers and assistant teachers or aides, and to your part-time employees? *[SELECT ALL THAT APPLY IN EACH ROW.]*

	FULL-TIME TEACHERS	PART-TIME TEACHERS	ASST. TEACHERS
a. Reduced child care fees	01	02	03
b. Compensation for overtime	01	02	03
c. At least partially paid retirement plan	01	02	03
d. Fully paid health insurance	01	02	03
e. Partially paid health insurance	01	02	03
f. Paid health insurance for dependents	01	02	03
g. At least partially paid dental insurance	01	02	03
h. Paid sick leave or personal leave	01	02	03
i. Paid vacations	01	02	03
j. Paid to attend staff meetings	01	02	03
k. Paid to attend professional development	01	02	03

B3. What is your definition for part-time for defining benefits?

_____ Hrs/Wk = Part time

_____ No distinction for benefits

B4. Now I would like to ask you about staff qualifications for defined as classroom teachers (lead or co-lead teachers).

NUMBER IN CERDEP CLASSROOMS	NUMBER IN OTHER 4K CLASSROOMS
-----------------------------------	-------------------------------------

a. How many classroom lead/co-lead teachers have a four-year college degree or graduate degree and are certified in early childhood education?

b. How many classroom lead/co-lead teachers have a four-year college degree or graduate degree but are not certified in early childhood education?

c. How many classroom lead/co-lead teachers have at most a two-year associate's degree in early childhood education, child development, or a related field?

d. How many classroom lead/co-lead teachers have none of the above degrees/credentials but have a Child Development Associate (CDA) credential?

e. How many classroom lead/co-lead teachers have none of the above degrees/credentials?

CHECK: Total number of teachers in CERDEP and other classrooms should sum to all lead or co-lead teachers.

B5. Do teachers and/or assistant teachers/aides in your program work under a collective bargaining agreement negotiated by a union? [SELECT ONE RESPONSE.]

YES 1

NO 2

C. REVENUE SOURCES FOR MOST RECENT FISCAL YEAR

C1. For the most recent completed fiscal year, please indicate if you had any revenue from each of the following public or private sources for your early childhood program. [*SELECT ONE RESPONSE PER ROW.*]

Public Sources

	YES	NO	DON'T KNOW
a. CERDEP 4K new provider funds for equipment and supplies	1	2	D
b. CERDEP 4K per child reimbursement for instruction	1	2	D
c. CERDEP 4K per child reimbursement for transportation	1	2	D
d. CERDEP 4K funds for program expansion	1	2	D
e. Education Improvement Act Child Development Program (EIA 4K) funds	1	2	D
f. Head Start (including Early Head Start) or Migrant Head Start grant funds	1	2	D
g. U.S.D.A. Child Care Food Program funds	1	2	D
h. Individual with Disabilities Act (IDEA) Part B or Part C funds	1	2	D
i. District Title I funds	1	2	D
j. Funds from school district / LEA other than shown in (a) to (i)	1	2	D
k. Program service fees paid by SC Vouchers	1	2	D
l. Municipal, state, or federal gov't contributions other than shown in (a) to (k) (specify): _____	1	2	D

Private Sources

m. Program service fees paid by parents	1	2	D
n. Monetary contributions from sponsoring agency	1	2	D
o. Subsidies/contributions from local community groups (United Way, Kiwanis, etc.)	1	2	D
p. Monetary contributions from parents' employers	1	2	D
q. Special events and fund raising efforts	1	2	D
r. Private donations	1	2	D
s. Investment income	1	2	D
t. Other private revenue source (specify): _____	1	2	D

D. ANNUAL EXPENDITURES FOR MOST RECENT FISCAL YEAR

We would like to know how much you spent on each major category of expenses in order to calculate your total costs. If you have records of last fiscal year's expenses we can get this information from these reports. This information would be on any kind of annual report summarizing costs such as a cash flow statement, audit, profit and loss statement, purchase or expenditure record, operating cost record, or your current annual budget if it shows expenses for the last fiscal year.

We begin with expenditures specific to the classrooms with CERDEP funding. Use the table below to record the following types of expenditures either for each CERDEP classroom OR for all CERDEP classrooms combined.

D1. Wages and Salaries for CERDEP Classroom Staff: In the last completed fiscal year, what was the total expenditure on wages and salaries (before deductions for taxes or employee benefit contributions) for all CERDEP classrooms staff including lead teachers, assistant teachers, aids, floaters, or other specialized staff working with children in the classroom? If staff are shared with other non-CERDEP classrooms in your program (e.g., art, music, or physical education teacher), please prorate their wages/salary based on the share of their time working with children in the CERDEP classrooms. *Amounts may be recorded in aggregate for D1 or by specific staff or staff categories in the additional rows under D1.*

D2. Non-wage Benefits for CERDEP Classroom Staff: What was the program's total expenditure on non-wage employee benefits for the staff in the CERDEP classrooms who were included in D1? Include only the employer's contribution. *This category includes the types of expenses listed below:*

- *FICA or equivalent (only the employer's matching amount; employee's share should be in D1)*
- *Unemployment insurance (total federal and state insurance costs)*
- *Worker's Compensation*
- *Disability Insurance (net of any contributions by employees)*
- *Health/Dental/Vision Insurance (net of any contributions by employees)*
- *Life Insurance for Staff (net of any contributions by employees)*

You may need to estimate this amount based on the ratio of non-wage benefits to salaries for your program as a whole.

	CERDEP ROOM 1	CERDEP ROOM 2	CERDEP ROOM 3	ALL CERDEP ROOMS
D1. Wages and salaries for classroom staff				
D2. Non-wage benefits for classroom staff				

The remaining expenditures are for the program as a whole. Please exclude any expenditures you can identify that did not support the CERDEP classrooms (e.g., those supporting only younger or older children in your program.) We will allocate a share of these expenditures to the CERDEP classrooms.

- D3. Wages and Salaries for Program-Level Staff. In the last completed fiscal year, what was the total expenditure on wages and salaries (before deductions for taxes or employee benefit contributions) for all program-level staff who support the CERDEP classrooms including administrative directors, other administrative staff, food preparation staff, and other non-contract employees? *Amounts may be recorded in aggregate for D3 or by specific staff or staff categories in the additional rows under D3.*
- D4. Non-wage Benefits for Program-Level Classroom Staff: What was the program's total expenditure on non-wage employee benefits for the program-level staff included in D3? *Refer to D2 for the types of non-wage benefits to include. As with D2, you may need to estimate this amount based on the ratio of non-wage benefits to salaries for your program as a whole.*
- D5. Staff Education/Training Costs: What was the total expenditure for the year for all teaching staff for their education or training? Include the following items:
- Fees for workshops or non-college courses
 - Conferences
 - In-service on site
 - Offsite fees at college or university
 - State professional or public training
 - Travel allowances (for training only)
- D6. Staff Fee Discounts. If you have staff members whose children are enrolled in the center, please estimate the loss in fee revenue from staff discounts.
- D7. Sub-Contractors: What was your total expenditure on contract workers for the year (i.e., people who work for you on a more irregular basis for whom you do not pay benefits)? You may have contracted out work in the following areas: accounting, legal services, clerical support, or substitutes.

	PROGRAM-LEVEL ANNUAL TOTAL
D3. Wages and salaries for program-level staff	
D4. Non-wage benefits for program-level staff	
D5. Staff education and training costs	
D6. Lost fees from staff discounts for their children	
D7. Subcontractors	

FACILITIES

The next questions deal with your annual costs for space and the facility the program occupies. We are interested in the parts you pay cash for as well as any in-kind donations related to rent, utilities, maintenance, etc.

(Record only the annual expenses below. If the center is part of a larger system, occupancy costs may not be included in the center records, but will have to be collected from the central office.)

- D8. Building Cash Costs. What were your total annual facilities costs, including the following: *(Interviewer: If the subcategories listed below are available, record them in the space provided as well as the total. You may have to check school records or you will need to estimate by square footage.)*

Rent or Mortgage *(note if interest and principal are included)* _____

Utilities (Gas & Electric, Water, Trash Removal) _____

Repair and maintenance (such as lawn service, janitorial service, etc.) _____

Other _____

TOTAL YEAR'S OCCUPANCY CASH COSTS:

- D9. Occupancy Donations. Do you use donated space or do you receive any kind of financial help on rent which reduces facility costs below (e.g., space and utilities donated) what they would be if you had to pay the market rate? [SELECT ONE RESPONSE.]

YES 1

NO 2 → GO TO D12

- D10. Which of the following is true?

a. All space is donated [SELECT ONE RESPONSE.]

YES 1 → GO TO D11

NO 2 → GO TO D10b

b. Part of space is donated [SELECT ONE RESPONSE.]

YES 1

NO 2 → GO TO D12

c. We receive a rent discount of _____ (Square Foot/Year) [\$ or %] → **GO TO D12**

(If they can only give the discount, like 50 percent off, then note that and we should be able to calculate the value in square feet per year knowing what they do pay in rent and the square footage of the facility.)

- D11. (If the space is donated) Do you know the annual rental value per square feet of the space? (If the interviewee does not know, don't ask for a guess. We will get an independent estimate. Complete D11a and D11b or D11c.)

a. # SQUARE FEET DONATED _____

AND

b. ESTIMATED RENT PER SQUARE FOOT _____

OR

c. VALUE OF DONATED SPACE (D11a x D11b) _____

D12. If utilities are donated, please estimate the annual value of donated utilities. (Write 0 if there is no donation.)

TOTAL YEAR'S VALUE OF DONATED UTILITIES _____

D13. If any services related to occupancy are donated (e.g., janitorial, lawn care, repairs), please estimate the total annual value.

TOTAL YEAR'S VALUE OF DONATED SERVICES _____

FOOD SERVICE

This section is about costs for serving meals and snacks to the children. *(Other food costs including the cost of food for events like fundraising carnivals and board meetings should be calculated and included under operating costs in E17 below. Record only the annual expenses below. If the center is part of a larger system, occupancy costs may not be included in the center records, but will have to be collected from the central office.)*

D14. Do you participate in a subsidized food program (e.g., U.S.D.A.)? [SELECT ONE RESPONSE.]

YES 1

NO 2

D15. Please give me the cost of food services, excluding personnel costs, for the last fiscal year. Also, do not include donated food or food reimbursements. (Centers will either have full food service preparation on site, or they will hire a catering service.)

TOTAL YEAR'S FOOD SERVICE COSTS (excluding personnel wages) _____

D16. Value of Donated Food: Was any food donated to the center or did you receive any cash reimbursement for money you spent on food during the last fiscal year? If so, what was the total value of donated food for the year (including value of subsidized food program)?

TOTAL YEAR'S VALUE OF DONATED FOOD _____

OTHER OPERATING COSTS

Finally, we want to collect data on other operating costs such as insurance and the cost of supplies, materials and equipment. For our purposes we will use the following definitions:

- SUPPLIES are consumables that are used up right away.
- MATERIALS are replaced within a year.
- EQUIPMENT is something that is repaired, lasts more than 1 year and costs over \$100.00.

As part of operating costs we want to estimate the cost of equipment used during the year. The best estimate is the total depreciation costs charged off for the fiscal year. If the program charges depreciation on equipment, write the amount in "Depreciation on Equipment" below.

D17. Insurance: What was your total annual cost of insurance last fiscal year? Include all forms of insurance: for the facility, which might include liability, fire, theft, flood, earthquake; vehicle; accident for children, staff or others; child abuse, etc. Do not include health insurance or any insurance programs, which are part of employee benefits.

a. TOTAL YEAR'S INSURANCE COSTS _____

b. TOTAL YEAR'S VALUE OF DONATED INSURANCE _____

D18. What are your operating expenses for the following kinds of items for the past fiscal year?

a.	Office Supplies	
b.	Children's Toys and Materials	
c.	Maintenance supplies	
d.	Equipment Rental and Maintenance	
e.	Non-depreciated equipment (e.g., items with short lifetime: bathroom supplies)	
f.	Depreciation on equipment (e.g., items with longer lifetime: computer)	
g.	Transportation and travel (incl. business mileage)	
h.	Telephone	
i.	Postage	
j.	Marketing, advertising, public relations	
k.	Photocopying, printing, publications	
l.	Licensing and fees	
m.	Dues and subscriptions	
n.	Interest payments and bank service charges	
o.	Miscellaneous (specify): _____	
p.	Total for fiscal year	

D19. Donated Equipment: In the last fiscal year did the center receive any donated equipment? If you did receive such donations, please give me a list of the donated items. For each item, I'd like to know its condition and its replacement value.

TOTAL YEAR'S VALUE OF DONATED EQUIPMENT: _____

D20. Donated Supplies and Materials: In the last fiscal year did your center/FCC home/preschool receive any donated supplies and materials? If so, please list each item. For each, give me an estimate of the market value.

TOTAL YEAR'S VALUE OF DONATED SUPPLIES AND MATERIALS _____

D21. Total Annual Overhead Costs: How much are you charged in overhead costs, as a contribution for the costs of operating your larger system of centers/sites? (This question is relevant only for programs which are part of a large system of centers or are part of a larger sponsoring agency which provides services to the center.)

TOTAL YEAR'S OVERHEAD COSTS _____

D22. Total Annual Volunteer Labor: If your program makes use of regular volunteers in the classroom, both parent and non-parent volunteers (e.g., unpaid interns) who work regularly at least 4 hours per month, please estimate the total annual hours contributed by these volunteers.

TOTAL YEAR'S VOLUNTEER HOURS _____

Provider ID: _____

Thank you for all your help! The information you have provided will be invaluable to our study.

E. FOR INTERVIEWER'S USE ONLY, AFTER COMPLETION OF THE INTERVIEW

E1. On a scale from 1 (poor) to 5 (very good) how do you rate the directors' articulateness?

Poor				Very Good
1	2	3	4	5

E2. *Assessment of the Quality of Financial Data Collected:* Please evaluate the quality of the expenditure data you have collected. Which of the following assessments best describes the quality?

Poor. The program does not have complete records for the whole fiscal year. in many cases we had to make year end estimates from incomplete monthly estimates and recollection, about which I am not very confident.....1 → GO TO D3

Reasonably Good. For instance, year-end cost summaries were not available, but I collected monthly data from well maintained records and I am reasonably confident about estimates we had to construct from recollection.....2

Very good. The program maintains complete records and most data was collected from these records3

E3. If you answered (1) to D2, circle the subcategories of data which are most problematic. If all were problematic, circle them all.

Wages and hours of staff..... 1

Personnel costs 2

Occupancy costs 3

Food service costs..... 4

Operating costs 5

In-kind donations 6

Other (specify _____) 8

References

- Barnett, W. Steven, and Kenneth B. Robin, *How Much Does Quality Preschool Cost?* New Brunswick, N.J.: National Institute for Early Education Research, 2006.
- Barnett, W. Steven, and Richard Kasmin, *Funding Landscape for Preschool with a Highly Qualified Workforce*, New Brunswick, N.J.: National Institute for Early Education Research.
- Burchinal, Margaret, Nathan Vandergrift, Robert Pianta, and Andrew Mashburn, “Threshold Analysis of Association Between Child Care Quality and Child Outcomes for Low-Income Children in Pre-Kindergarten Programs,” *Early Childhood Research Quarterly*, Vol. 25, No. 2, 2010, pp. 166–176.
- Caronongan, Pia, Gretchen Kirby, Kimberly Boller, Emily Modlin, and Julia Lyskawa, *Assessing the Implementation and Cost of High Quality Early Care and Education: A Review of Literature*, OPRE Report 2016-31, Washington, D.C.: U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research and Evaluation, April 2016.
- Davis, Elizabeth, Lynn A. Karoly, Bobbie Weber, Pia Caronongan, Kathryn Tout, Patti Banghart, Sara Shaw, and Anne Partika, *Market Rate Surveys and Alternative Methods of Data Collection and Analysis to Inform Subsidy Payment Rates*, OPRE Report 2017-115, Washington, D.C.: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services, December 2017.
- Friedman-Krauss, Allison H., W. Steven Barnett, G. G. Weisenfeld, Richard Kasmin, Nicole DiCrecchio, and Michelle Horowitz, *The State of Preschool 2017: State Preschool Yearbook*, New Brunswick, N.J.: National Institute for Early Education Research, 2018.
- Gault, Barbara, Anne W. Mitchell, and Erica Williams, *Meaningful Investments in Pre-K: Estimating the Per-Child Costs of Quality Programs*, Washington, D.C.: Institute for Women’s Policy Research, 2008.
- Gilreath, Ariel, “SC High Court Vacates Abbeville Lawsuit Decision,” *Index-Journal*, November 20, 2017. As of November 30, 2018:
http://www.indexjournal.com/news/breaking/sc-high-court-vacates-abbeville-lawsuit-decision/article_e185b52e-6399-5017-997b-620701866ca4.html
- Karoly, Lynn A. *Preschool Adequacy and Efficiency in California: Issues, Policy Options, and Recommendations*, Santa Monica, Calif.: RAND Corporation, MG-889, 2009. As of November 30, 2018:
<https://www.rand.org/pubs/monographs/MG889.html>

- Keys, Tran D., George Farkas, Margaret R. Burchinal, Greg J. Duncan, Deborah L. Vandell, Weilin Li, Eric A. Ruzek, and Carollee Howes, “Preschool Center Quality and School Readiness: Quality Effects and Variation by Demographic and Child Characteristics,” *Child Development*, Vol. 84, No. 4, July–August 2013, pp. 1171–1190.
- National Academies of Sciences, Engineering, and Medicine, *Transforming the Workforce for Children Birth Through Age 8: A Unifying Foundation*, Washington, D.C.: National Academies Press, 2015.
- National Academies of Sciences, Engineering, and Medicine, *Transforming the Financing of Early Care and Education*, Washington, D.C.: The National Academies Press, 2018.
- National Institute for Child Health and Development (NICHD) Early Child Care Research Network, “Child-Care Structure→ Process→ Outcome: Direct and Indirect Effects of Child-Care Quality on Young Children's Development,” *Psychological Science*, Vol. 13, No. 3, 2002, pp. 199–206.
- National Institute for Child Health and Development (NICHD) Early Child Care Research Network, “Does Quality of Child Care Affect Child Outcomes at Age 4 (1/2)?” *Developmental Psychology*, Vol. 39, No. 3, 2003, pp. 451–469.
- Mississippi Department of Education (MDE), “MDE Awarded \$6 Million Grant from W.K. Kellogg Foundation for Early Childhood Education,” Jackson, Miss., December 21, 2016. As of Month DD, YYYY:
<https://www.mdek12.org/OCGR/6milliongrant>
- Office of Child Care, U.S. Department of Health and Human Services, “Provider Cost of Quality Calculator,” website, undated. As of November 30, 2018:
<https://www.ecequalitycalculator.com/>
- South Carolina Department of Education, “2017-2018 Final State Minimum Salary Schedule,” undated. As of November 30, 2018:
<https://ed.sc.gov/finance/financial-services/budget-planning-for-upcoming-school-year/fy-17-18/fy-17-18-state-minimum-salary-schedule-final/>
- South Carolina Department of Education, “CDEP Guidelines,” website, 2017. As of November 30, 2018:
<https://ed.sc.gov/instruction/early-learning-and-literacy/cdep/>
- South Carolina Department of Education, *Child Early Reading and Development Education Program (CERDEP) Report Provided to the EOC*, unpublished, 2018a.
- South Carolina Department of Education, “2018-19 CERDEP Guidelines,” 2018b. As of November 30, 2018:
<https://ed.sc.gov/scdoe/assets/File/instruction/early-learning-literacy/CDEP/CERDEP%20guidelines%2018-19%20approved%20%2321464.docx>

South Carolina Department of Education, “CDEP Resources and Forms,” website, 2018c. As of November 30, 2018:

<https://ed.sc.gov/instruction/early-learning-and-literacy/cdep/cdep-resources-and-forms1/>

South Carolina Department of Social Services, “Child Care and Development Fund (CCDF) Plan for South Carolina: FFY 2019–2021,” website, 2018. As of November 30, 2018:

http://scchildcare.org/media/61267/submittedstplan_pdf_2019.pdf

South Carolina Early Learning Standards Interagency Stakeholder Group, “South Carolina Early Learning Standards,” website, 2018. As of November 30, 2018:

<https://ed.sc.gov/instruction/early-learning-and-literacy/early-learning/standards/>

South Carolina Education Oversight Committee, *Results and Related Recommendations of the Inventory and Study of Four-Year-Old Kindergarten Programs in South Carolina*, Columbia, S.C., March 15, 2006. As of November 30, 2018:

https://dc.statelibrary.sc.gov/bitstream/handle/10827/5197/EOC_Results_4_Year_Old_Programs_2006-3-15.pdf

South Carolina Education Oversight Committee, *State-Funded Full-Day 4K*, Columbia, S.C., 2017. As of November 30, 2018:

<https://www.scstatehouse.gov/reports/EducationOversightComm/State-Funded%20Full-Day%204K%20Evaluation%20-%20Final%201.20.17.pdf>

South Carolina Education Oversight Committee, *State-Funded Full-Day 4K: Evaluation*, Columbia, S.C., 2018. As of November 30, 2018:

<https://www.scstatehouse.gov/reports/EducationOversightComm/Evaluation%20of%20Full-Day%204K,%20FY2016-17%20&%20FY2017-18-Final.pdf>

South Carolina First Steps, “4K Data Request to EOC,” unpublished, 2018a.

South Carolina First Steps, “South Carolina First Steps 4K Guidelines 2018-19,” Columbia, S.C., 2018b. As of November 30, 2018:

<http://scfirststeps.com/wp-content/uploads/2018/08/FINAL-First-Steps-4K-Guidelines-2018-2019-8.4.18.pdf>

South Carolina General Assembly, “Read to Succeed Act,” Act No. 284, June 26, 2014.

Thomason, Sarah, Lea Austin, Annette Bernhardt, Laura Dresser, Ken Jacobs, and Marcy Whitebook, *At the Wage Floor: Covering Homecare and Early Care and Education Workers in the New Generation of Minimum Wage Laws*, University of California at Berkeley Center for Labor Research and Education, University of California at Berkeley Center for the Study of Child Care Employment, and Center on Wisconsin Strategy, May 2018. As of November 30, 2018:

<http://laborcenter.berkeley.edu/at-the-wage-floor/>

U.S. Bureau of Labor Statistics, “Overview of BLS Wage Data by Area and Occupation,” website, 2017. As of November 30, 2018:
<https://www.bls.gov/bls/blswage.htm>

Weiler, Spencer Charles, *Abbeville v. the State of South Carolina: A Case Study*, dissertation, Virginia Polytechnic Institute and State University, Blacksburg, Va.: Virginia Tech Libraries, 2007.

Whitebook, Marcy, Caitlin McLean, and Lea J. E. Austin, *Early Childhood Workforce Index 2016*, Berkeley, Calif.: Center for the Study of Child Care Employment, University of California, Berkeley, 2016. As of November 30, 2018:
<http://cscce.berkeley.edu/early-childhood-workforce-2016-index/>

Zaslow, Martha, Ivelisse Martinez-Beck, Kathryn Tout, Tamara Halle, and Herbert P. Ginsburg, eds., *Quality Measurement in Early Childhood Settings*, Baltimore, Md.: Brookes, 2011.

The SC Education Oversight Committee is an independent, non-partisan group made up of 18 educators, business persons, and elected leaders. Created in 1998, the committee is dedicated to reporting facts, measuring change, and promoting progress within South Carolina's education system.

ADDITIONAL INFORMATION
If you have questions, please contact the Education Oversight Committee (EOC) staff for additional information. The phone number is 803.734.6148. Also, please visit the EOC website at www.eoc.sc.gov for additional resources.

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An Evaluation of Algebra Nation in South Carolina

2017-2018

Edwin Dickey, Ph.D.

with assistance from

Drs. Michael Seaman and Rainey Knight

12/28/2018

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Executive Summary

A comprehensive, yearlong **evaluation** of Algebra Nation use and impact in South Carolina was **conducted by an independent team of educators under contract with the South Carolina Education Oversight Committee** as directed by the General Assembly in the annual general appropriation acts for Fiscal Years 2017-2018 and 2018-2019. The evaluation of Algebra Nation as implemented in school year 2017-2018 gathered data on:

- **student achievement** as measured by the state's End-of-Course Algebra 1 examination to examine how Algebra Nation access or use might have impacted test scores;
- **teachers' use and opinions** of Algebra Nation resources through a survey; and
- **how algebra** in middle and high schools **was actually taught and learned** with Algebra Nation through classroom observations.

The evaluation report begins with a **description of Algebra Nation** and documents **how Algebra Nation was implemented** in the state's schools during the 2017-2018 school year. A **description of the methodologies and measurement instruments** used to answer six research questions for this evaluation is provided followed by the **data and results gathered with discussion and conclusions**. **Recommendations are provided** in the final section. An Appendix includes a copy of the teacher survey used, the classroom observation instrument, and the reports for each of the classroom observations.

While Algebra Nation was made available to all South Carolina school districts including online and charter schools, **70 districts and charter schools made it available to students and teachers in 2017-2018 and of those districts actual usage varied significantly**. The evaluation focused on the 63 traditional school districts. There was evidence that many with access to the resources actually used them sparingly, but there was also evidence that particular teachers made extensive and consistent use. Results from a sample of 97 teachers that used Algebra Nation extensively and with fidelity as well as a subsample of 60 teachers who also taught algebra at the same school during the prior school year used to examine impact on test scores.

The **results** indicated the following about test performance:

- scores on the End-of-Course Algebra 1 examination for students whose teachers used Algebra Nation materials actively and with fidelity over the 2017-2018 school year remained constant while the statewide average dropped one point;
- for teachers using Algebra Nation materials actively and with fidelity, middle school, Algebra 1, and Black/African-American students experienced increased scores; however, high school, Intermediate Algebra, and four other culture/race group students experienced decreased scores;
- districts with access alone to Algebra Nation did not experience test score gains from the prior year;
- students in schools with access to Algebra Nation did not perform better than districts without access; and
- further study related to individual student usage of Algebra Nation is needed to determine impact on test scores.

Because use of Algebra Nation materials was voluntary and determined by individual teachers, **access alone was not sufficient to determine effectiveness.** Teachers with evidence of high levels of student usage were identified for comparison of test scores from the prior year. Also, results from a 50-item examination administered on a single day near the end of the school, while important and influential, do not alone provide sufficient impact evidence.

Data gathered from a survey of teachers using Algebra Nation as well as classroom observations of teachers' use with students indicated that the **materials positively impacted the rigor and quality of instruction.** Teachers cited many examples of why the use of Algebra Nation:

- enhanced their teaching;
- helped them raise expectations;
- influenced them to implement more rigorous instruction; and
- motivated their students to learn algebra.

Teachers also cited how Algebra Nation materials allowed them to provide meaningful instruction for periods of time when school was cancelled or when they were absent for health or professional reasons.

Classroom observations documented how the use of Algebra Nation materials impacted teachers' attention to mathematical practices addressing reasoning, conceptual understanding, applied problem solving, and mathematical representations in a manner that encouraged students' active engagement and cooperation. Teachers were also observed using a variety of instructional approaches in a manner that differentiated among the needs of their students including those whose primary language is Spanish. Data from the observations and the survey indicated that teachers considered Algebra Nation to be a valuable partner in the teaching of algebra. Observations also documented how teachers developed new knowledge and skills through the use of the Algebra Nation materials.

If the sole goal for implementing Algebra Nation as part of South Carolina secondary school algebra learning was to increase EOCEP Algebra 1 examination scores, there was little evidence that such an increase occurred during the first year of implementation. **The scores, for the most part, did not drop as much as the total state average from the prior year, but gains were modest and limited to particular groups and schools.** However, there was evidence that teaching improved as did learning that might not be measured by the EOCEP examination particularly after only one year of use.

Overall, the **results of the evaluation provide evidence that the use of Algebra Nation as part of middle and high school algebra instruction shows promise and therefore should continue.** The test performance when the materials were used actively yielded sufficiently positive results to suggest that test score gains, improved instruction, and student motivation increases are likely to be experienced as teachers make more use of Algebra Nation. Also, **80% of the surveyed teacher respondents felt that the use of the Algebra Nation materials had a positive impact on their students' learning of algebra, and 90% of teachers surveyed felt that providing South Carolina teachers with access to Algebra Nation should be a high or moderate priority.** South Carolina algebra teachers invested time and effort toward learning about and using Algebra Nation during the first year it was made available. Interest in and use of this resource is growing during the second year. With test score gains for particular groups and very positive feedback from teachers and through observations during the first year, continuing to provide Algebra Nation is recommended.

Test scores and student usage of Algebra Nation from the current year of implementation (2018-2019) should be examined to determine if gains are realized for schools and districts using the resource.

What is Algebra Nation?

Algebra Nation is a set of curriculum materials developed to improve student achievement in a first-year secondary school course addressing algebra, typically a course called “Algebra 1” and required for graduation from high school and admission to college. The six key components of Algebra Nation are:

1. Video Instruction
2. Printed Workbook
3. Test-Yourself! Practice Tool
4. Algebra Wall
5. On Ramp to Algebra (Adaptive Pre-Algebra Learning Tool)
6. Teacher Area



Algebra Nation was developed collaboratively by the Lastinger Center at the University of Florida and Study Edge, a Florida-based educational technology company, beginning in 2012. It was first used in the state Florida in 2013 and now is also used in Alabama, Mississippi, Michigan and New York City as well as in South Carolina. Materials based on the Algebra Nation concept and components are being developed for high school Geometry and Algebra 2 courses as well as for grades 6, 7, and 8 middle school mathematics.

The electronic Algebra Nation materials can be accessed on computers (desktop or laptop), tablets, or smartphones using Windows, Macintosh, Android, and iOS systems. Internet access is required though some materials including videos can be downloaded for viewing or use when Internet access is not available. A printed Workbook is provided to students and teachers in support of electronic materials.


Video Instruction

Videos are offered by six different “Study Experts” who serve as instructors addressing algebra content aligned to South Carolina Algebra 1 Standards. The instructors represent different gender, racial, and ethnic groups and provide instruction using distinct teaching styles, pacing, and personalities as depicted in **Figure 1** on the following page that provides guidance on selecting a study expert. Teachers or students are able to choose from among the different instructors addressing the same algebra content. One Study Expert offers instruction in Spanish. Videos for one study expert (Zach) are closed captioned providing access for hearing impaired or those wanting written explanation. Algebra content includes procedural skills, conceptual understanding, and real-world applications. The video instruction provides for differentiated or independent learning. Students are able to watch videos individually at home or in school, or teachers might show or assign videos as part of classroom instruction.

×

Choose your Study Expert

☐




Amy

↓

REVIEW
IN-DEPTH

☐




Ashley

↓

REVIEW
IN-DEPTH

☐




Darnell

↓

REVIEW
IN-DEPTH

☐




Jose

SPANISH SUPPORT

↓

REVIEW
IN-DEPTH

☐




Kiana

↓

REVIEW
IN-DEPTH

☐



Zach

↓

REVIEW
IN-DEPTH

Figure 1: Study Experts

Videos are provided in folders with a “Start Here” set (with a welcome video and handouts for families or students) followed by nine content sections. A “Wait! There’s More!” section includes videos and other resources. Each folder includes a copy of the associated Workbook pages, the topics for that section with reference to the associated Workbook pages, and a link to the appropriate Test Yourself Practice Tool. The nine algebra sections are titled:

1. Expressions (9 topics)
2. Equations and Inequalities (9 topics)
3. Introduction to Functions (9 topics)

4. Linear Equations, Functions and Inequalities (10 topics plus topic on direct and inverse variation)
5. Quadratic Equations and Functions Part 1 (10 topics)
6. Quadratic Equations and Functions Part 2 (8 topics)
7. Exponential Functions (6 topics)
8. Summary of Functions (4 topics)
9. Two-Variable Statistics (5 topics)

During the 2017-2018 school year, there were approximately 24 hours of video lessons per Study Expert that cover 62 topics with a total of nearly 150 hours of video instruction. Videos to support the Test Yourself solutions and help, On Ramp, Boot Camp, glossaries and other resources brought the total to over 500 hours. Access to the videos required a username and password.

Printed Workbook and PDF Notes

A Workbook consistent with the instructional videos provided teachers and students with paper resources on which to write and practice algebra work seen and heard on the videos. The workbook content was reviewed by a team of South Carolina mathematics educators including high school teachers of algebra and college mathematics education faculty members to ensure the material is consistent with the South Carolina Algebra 1 Standards. Answer keys for the workbook problems were provided as a separate file in the Teacher Area.

For 2017-2018, the workbook was 224 pages in length and had 9 sections addressing each of the topics for which there are videos. A Braille version of the workbook was also made available to schools. Workbooks included an index that provided the particular section number and topic that addressed each of the South Carolina College and Career Ready Standards for Algebra 1. Each standard was addressed by at least one topic but most were addressed by several. South Carolina Algebra 1 standards were also listed at the beginning of the section addressing them. Some of the Workbook examples and problems used contexts specific to the state of South Carolina, such as references to cities, schools, companies, sports teams, and other local entities.

Test-Yourself! Practice Tool

Test questions similar to those used on standardized algebra tests including the South Carolina End of Course Examination Program (EOCEP) Algebra 1 examination were provided online to allow students to practice responding to questions based on what was learned through regular classroom instruction, video lessons, or workbook use. Reports on students' performance were available to teachers and responses to practice test questions were linked to video instruction for the concept tested.

The Test Yourself Practice was included at the end of each of the nine sections containing the instructional videos. Ten questions are generated for the particular topic section with a review of the answers given by the student after the ten responses are entered. A calculator is sometimes provided. Selected-response items with 4 or 5 alternatives are used as are some constructed-response items. There are over 500 items adapted to test the nine topic sections.

Algebra Wall

The Algebra Wall serves as an online community resource for students to pose questions, seek help, or provide help to others. The Wall was available 24/7 and monitored by the Study Experts and other Algebra Nation staff members. Questions about homework problems or concepts were common. Peer instruction built a sense of community and supported both those who posted questions as well as those providing responses. Algebra Nation monitored usage with a “Leaderboard” and provides rewards for students who were most active as measured by “Karma Points.”

An example of interaction among students is provided in **Figure 2** below where a student asks about how to solve an equation, two other students provided assistance, and a Study Expert praises the work:

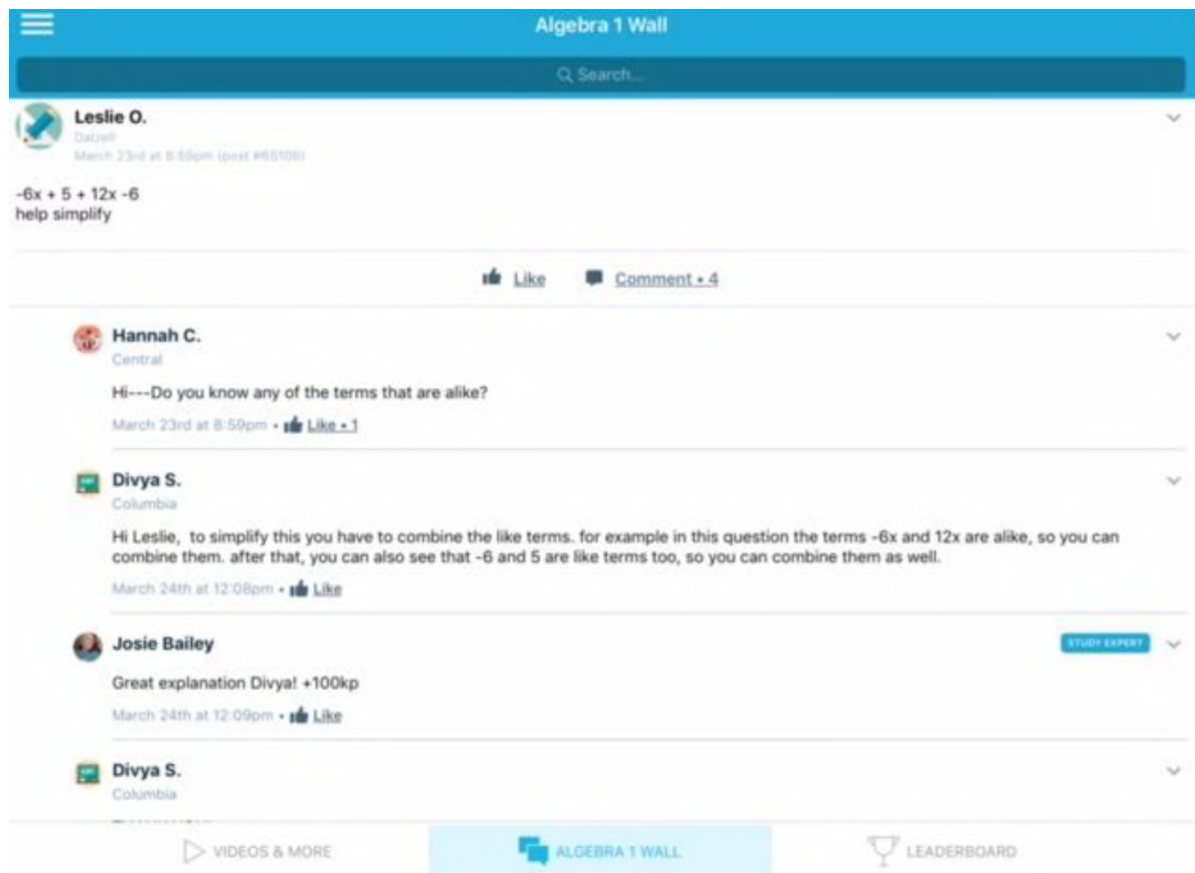


Figure 2: Algebra Wall Example


On Ramp to Algebra (Adaptive Pre-Algebra Review)

Diagnostic assessment tools made up the On Ramp to Algebra. These tools could be used to identify content deficiencies in areas such as fraction arithmetic or algebra terminology and provided students and teachers with information about concepts to be mastered for success in algebra. A total of 121 concepts were tested with reports on progress provided over five content domains: Number and Quantity, Number Systems, Algebra, Functions, and Probability and Statistics all addressing mathematics standards from grades K-8. A Boot Camp resource with sample multiple-choice and constructed-

response questions specific to South Carolina standards was provided at the end of the 2017-2018 school year. Each question was followed by a short video that provided explanations and the answers to the questions.


Teacher Area

The teacher area included resources such as glossaries, content scope and sequence information and alignments, reports about students' usage of Algebra Nation resources and progress, as well as a Teacher Wall that served as a communication and help medium. Over the school year, teachers posted questions, requested help, or offered observations. Examples of postings included pictures of student work, resources tied to practice for tests, questions about locating resources, or requests for assistance with technical problems. All post were monitored and responded to by Algebra Nation staff. **Figure 3** provides an example of a Teacher Wall posting of a teacher sharing an idea with another responding.

**Julie Merritt** Dorchester County School District 2
February 26th at 1:02pm ET (Post #283)


Hey there! I just began Unit 5 on Solving Quadratics with my students. I found a fun way to introduce quadratics. The warm up on the board had students grab expo markers and they were asked to draw a person and a basketball hoop on their actual desk. The next prompt they were given was to draw the trajectory of a basketball going into the hoop and a basketball that would not go into the hoop. I gave the students ample time to draw because they were loving it. Then I had all of them get out of their desks to walk around and look at how other people drew their basketball going in. They had to discuss why one would go in and why one would not. Once the class came together we talked about the different types of shots students could take, how high the arc would be, adjusting the distance and how that would affect the arc of the ball. It was a really great activity to introduce a parabola and the vertex. The students really loved it.

Like • Reply • 2


**Ashley Jacobs** Dorchester County School District 2
February 26th at 1:52pm ET (Post #284)

Julie, I also did this activity and the students loved it! They really enjoyed the idea of writing on their desk. I was nervous at first about letting them draw on the desk but it actually helped clean the desk! After we talked about our drawings I sprayed each desk with whiteboard cleaner and the students wiped them clean. I will definitely use this activity again!

Like • Reply • February 26th at 1:52pm ET (Post #284)

**Ashley Jacobs** Dorchester County School District 2
February 26th at 1:52pm ET (Post #285)

Here is an example



Like • Reply • 1 • February 26th at 1:52pm ET (Post #285)

Figure 3: Teacher Wall Example

As illustrated in **Figure 4**, Teacher Resources provided by Algebra Nation included a “Getting Started” folder with videos providing an overview of Algebra Nation and the On Ramp as well as PowerPoint presentations on algebra class integration, a lesson plan template, reflection questions, and resources from inquiry-based discovery lessons. A folder with “Resources for Students and Families” with a Community Service poster, a “parent night” PowerPoint presentation, and an Algebra Nation Scavenger Hunt with answer key was also included. A video for using Desmos, a free web-based graphing calculator, was provided. There was also a Reports section that provided data and analytic tools about students’ work for students associated with a particular teacher or class section.

Word and Portable Document Format (PDF) files were provided online so that teachers could print or modify materials for use in support of lessons. Independent practice files were provided for each topic within each section, and a separate file with answers was also available. Mini Assessments, Activities with Lesson Plans, and Student Learning Plan form files for each section and topic were provided. Resources for 19 summer school algebra lessons what include a PowerPoint for each lesson followed by activities, games, and assessments were included.

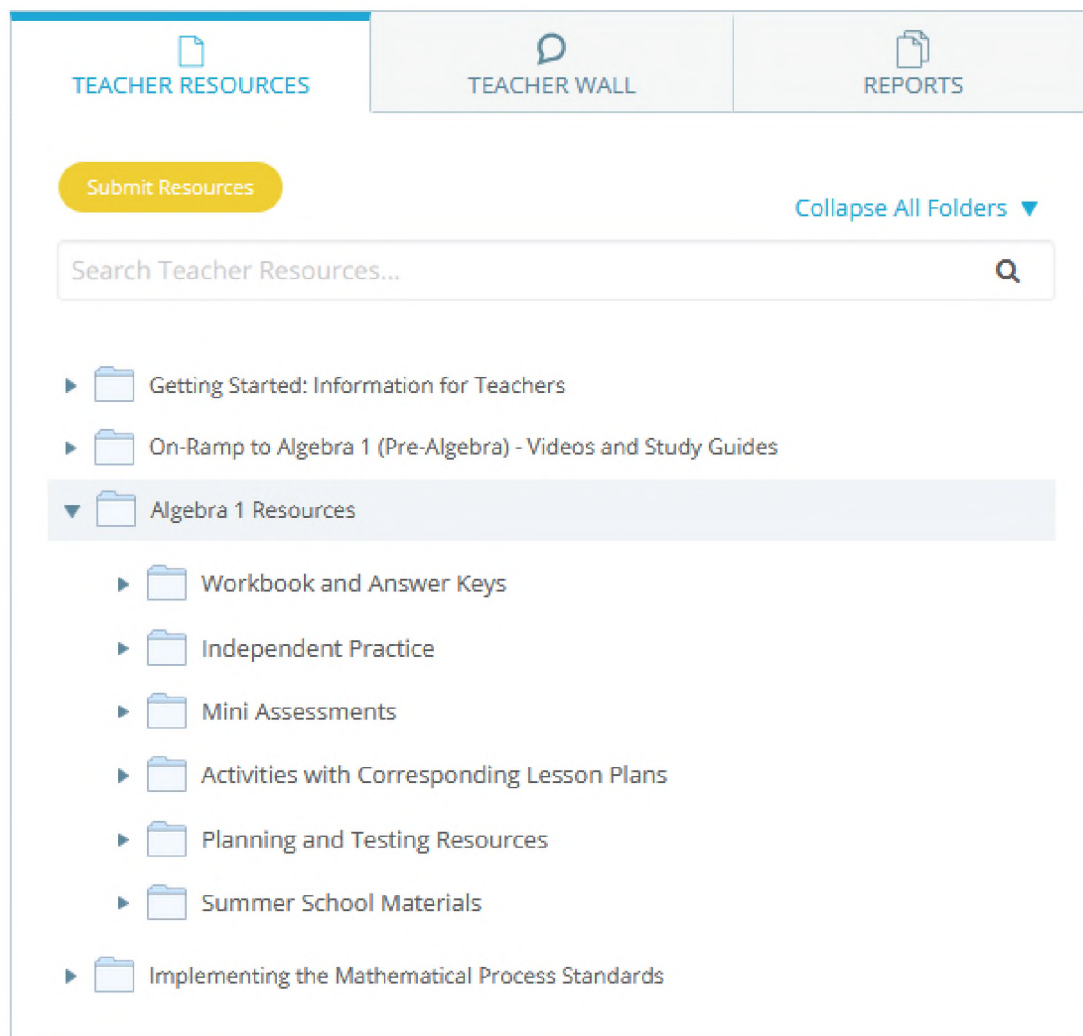


Figure 4: Teacher Resources Example

Over 740 files were provided.

The Reports section provided teachers with numerous options for generating reports based on their students' use of Algebra Nation resources. The reports allowed teachers to use students' results for grading purposes, to gain feedback about student learning or progress that guided instruction, and to make individualized assignments for particular students, for student groups, or for an entire class.

During the summer of 2017 and throughout the 2017-2018 school year, Algebra Nation staff provided professional development sessions for teachers in school districts choosing to implement Algebra Nation. As part of the professional development, five methods of implementation were suggested:

1. using the videos as a virtual co-teacher during class and pausing to elaborate on some concepts or having students collaborate with their shoulder partner to work through questions;
2. showing videos while students followed along to complete their workbook sections when the teacher was absent, so no plans had to be created for a substitute preventing students from missing a day of learning;
3. assigning the Test Yourself! Practice Tool as homework and having students self-assess, working through solution videos to build up the skills they were still working on;
4. encouraging students to download the Algebra Nation mobile app and use the Student Wall when they were working on their homework, so they could get their questions answered even if they are not at school; and
5. supporting each student in setting personal goals to work through the On-Ramp tool, so students could fill in the gaps they need to be successful in Algebra 1.

South Carolina Implementation

Timeline

During the Spring of 2017, staff members from the Education Oversight Committee, the South Carolina Department of Education, and Algebra Nation began discussions about the launch of Algebra Nation and providing access to all South Carolina schools. Plans were made to announce the resource during Summer 2017 and to begin work on teacher professional development as well as on addressing the technical access requirements by schools. Amy Adams, a Study Expert and former mathematics teacher in Florida, was assigned to work with South Carolina teachers beginning in June and Chris Smith, another former mathematics teacher, was added in September. Ms. Adams and Mr. Smith provided teacher professional development sessions for groups and also visited schools and teachers throughout the state providing support either in person or electronically.

August 1, 2017, was the official launch date but significant training and support work began in May 2017. Schools were given access to the Algebra Nation resources but usage was voluntary with decisions on how or when to use Algebra Nation left to teachers or districts to determine. Algebra Nation access was integrated into the data system of each school district agreeing to implementation.

Schools and districts were provided with opportunities to train teachers during the summer and into the school year. Any teacher teaching Algebra 1 in middle or high school or Foundations of Algebra or Intermediate Algebra was encouraged to access and use Algebra Nation materials. Students at schools with access were free to use the materials as part of any class or outside of school. Algebra Nation was offered as a supplementary resource to complement districts' algebra curriculum. Use by teachers was voluntary and access by students and teachers inside and outside of school was offered.

Implementation Data

By the end of September 2017, 57 school districts had access to Algebra Nation resources and by January 31, 2018, a total of 63 South Carolina school districts plus the South Carolina Public Charter School District and schools operated by the Department of Juvenile Justice had full access as well as 5 charter or online schools. All South Carolina school districts were offered access but 18 districts either did not respond to requests for providing access or determined that their instructional plans for Algebra 1 were served by other resources.

A total of 70,000 printed Workbooks were provided to students in participating schools and districts. This exceeds the 60,489 students statewide who took the Ed of Course Algebra 1 Examination in 2017-2018. Training sessions for 1,225 teachers at 100 sessions were held. Videos in Spanish were made available in November 2017 and a Braille version of the Workbook was provided in February 2018.

By May 30, 2018, Algebra Nation reported the data in **Table 1** for student and teacher "logins" (number of times accessing Algebra Nation resources), "unique logins" (number of individuals accessing Algebra Nation resources), and the total of number of times videos were viewed.

Table 1: Algebra Nation Usage in South Carolina 2017-2018

Total Student Logins	360,030
Total Teacher Logins	51,810
Unique Student Logins	40,016
Unique Teacher Logins	2,182
Total Video Views	493,550
Total Spanish Video Views	8,359

Source: Stephanie Cugini Algebra Nation Usage Report – South Carolina 8/1/17 – 5/30/2018

The number of teachers logging in to Algebra Nation (2,182) exceeded the number of teachers whose students took the 2017-2018 EOCEP Algebra 1 examination (1,535) as well as the number of teachers from districts agreeing to implement Algebra Nation (1,224). This was a result of teachers who teach other subjects having access to Algebra Nation materials. Also, since 60,445 students took the EOCEP Algebra 1 examination, based on unique student logins, approximately 66% or 2 of every 3 South Carolina algebra students had access to Algebra Nation. The total logins do not represent the number of students viewing videos as part of whole-class instruction. For example, a teacher might login and allow 25 students in her class to view the video. Data from the teacher survey administered as part of this evaluation (Question 5 reported in the **Results** section of this report) indicated that up to 54% of responding teachers showed videos to their entire class at least once, and 23% did so at least weekly.

As depicted in **Figure 5**, video viewing trends indicated between 25,000 and 70,000 videos were viewed by students per month during the school year with the most views near the end of the semester or school year.

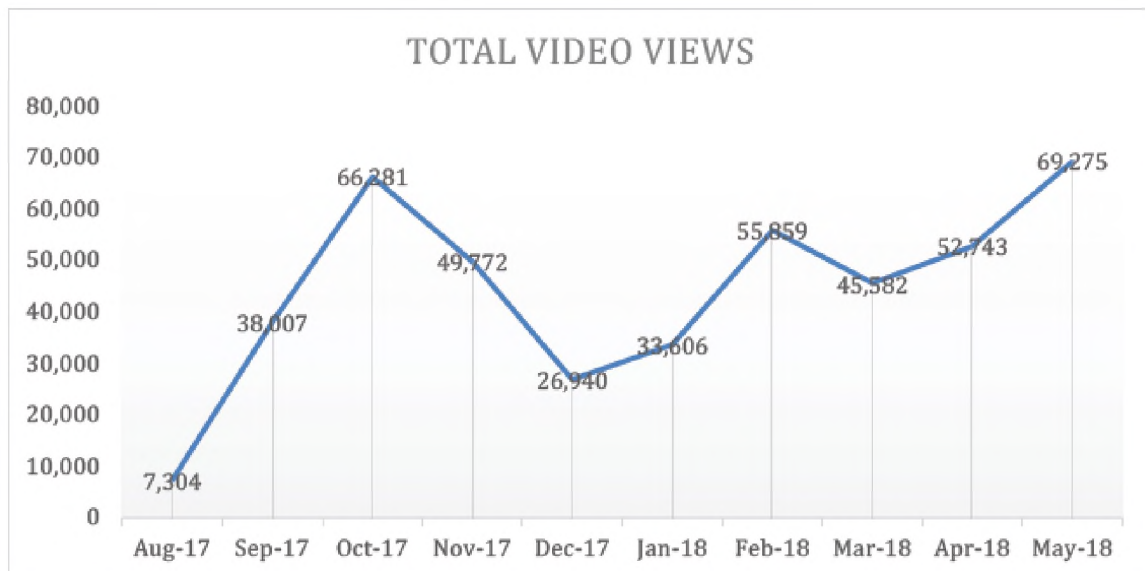


Figure 5: Total Video Viewing 2017-2018

Source: Stephanie Cugini Algebra Nation Usage Report – South Carolina 8/1/17 – 5/30/2018

Figure 6 represents data on monthly student logins ranging from approximately 25,000 to 60,000 per month and peaking in October 2017.

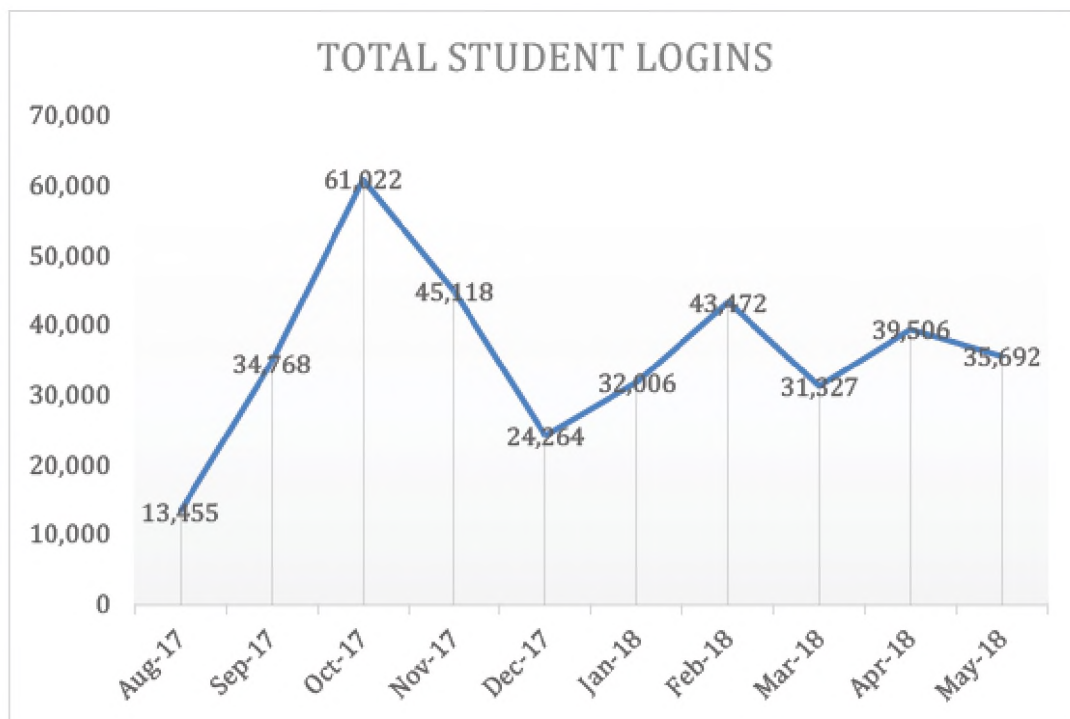


Figure 6: Total Student Logins 2017-2018.

Source: Stephanie Cugini Algebra Nation Usage Report – South Carolina 8/1/17 – 5/30/2018

Usage data from Algebra Nation for 2017-2018 indicated that while some 140,000 access accounts were provided, as many as 64% (89,300) never logged into Algebra Nation and of the 36% that did use the resources, active use such as logging in and viewing videos was evident for about half of that group (25,000). With just over 60,000 students taking the End of Course Algebra 1 examination in 2017-2018 intended and beneficial flexibility of using Algebra Nation materials did not ensure that access to the resources resulted in use.

Evaluation Scope and Methods

Scope of the Evaluation and Research Questions

Impact on the End-of-Course Algebra 1 Examination.

The primary and fundamental question to be answered by this evaluation was:

1. **Does access to or use of Algebra Nation materials positively impact the performance of South Carolina students in Algebra 1 and Intermediate Algebra courses on the End of Course Education Program (EOCEP) Algebra 1 examination?** Specifically, do students with access to Algebra Nation materials, on average, score higher than those without access or higher than comparable students from the prior year? Do students whose teachers use Algebra Nation materials with fidelity score higher than comparable students from the prior year?

The evaluation also sought and analyzed data that would answer the following two questions:

2. Do EOCEP Algebra 1 examination scores suggest a differential impact of Algebra Nation materials on South Carolina student subgroups (e.g. White-Black-Latino, ELL-NonELL, middle-high, Algebra 1-Intermediate Algebra, male-female)?
3. Are there component parts of Algebra Nation (e.g., videos, test practice tool, Algebra Wall) that have a higher association with student performance on the EOCEP Algebra 1 examination than the other components?

To evaluate these research questions, data on the 2016-2017 and 2017-2018 administrations of the EOCEP Algebra 1 examination were gathered from the publicly released results provided by the South Carolina Department of Education. Results from the 2017-2018 EOCEP Algebra 1 examination for districts with access to Algebra Nation were compared to their respective 2016-2017 results. Scores from 2017-2018 for districts without access to Algebra Nation were compared to those with access.

A sample of teachers from different schools and districts for whom there was evidence of consistent and faithful use of Algebra Nation was identified. The results on the EOCEP Algebra 1 examination for those teachers were compared to scores from the prior year for the entire school during the prior year. Also, a subsample of the teachers using Algebra Nation with fidelity, but also teaching algebra at the same school both in 2016-2017 and 2017-2018 was identified to compare students' test scores from both years.

Data about student subgroups were used to analyze differential impact. Data on usage of Algebra Nation by teachers and by students was secured from the Algebra Nation staff. Education Oversight Committee staff provided students' test score results by teacher from 2016-2017 and 2017-2018. Analysis was performed to determine the degree to which usage of different component parts of Algebra Nation related to examination scores. The sample of teachers using Algebra Nation with fidelity was used for examining test scores of student subgroups (e.g. White-Black-Latino, ELL-NonELL, middle-high, Algebra 1-Intermediate Algebra, male-female) as well as to examine the relationship between test scores and different Algebra Nation components (e.g., videos, test practice tool, Algebra Wall).

Impact on teachers.

Related to teaching and classroom learning the evaluation sought and analyzed data to answer the following three questions:

1. Do teachers perceive that particular component parts of Algebra Nation (e.g., videos, online help, Algebra Wall) impact student performance on the Algebra 1 EOCEP greater than others?
2. What types of student or teacher engagements with the different components of Algebra Nation are required in order to impact student performance in Algebra 1?
3. Do South Carolina teachers of Algebra 1 whose students use Algebra Nation materials consider the materials useful to their work?

To evaluate these research questions data were gathered using a statewide survey of Algebra Nation using teachers as well as a set of classroom observations conducted by the researchers. Results of the survey and observation were analyzed and reported.

Methods, Sample, and Instruments

Methods and sample.

To address the primary research question and the additional two questions tied to students' performance on the EOCEP Algebra 1 examination, data were gathered to identify South Carolina schools and districts that had access to Algebra Nation as well as teachers in schools that not only had access to Algebra Nation materials, but also implemented usage with students with demonstrated fidelity and consistency over the 2017-2018 school. Districts that had access to Algebra Nation comprised the group called **"Districts with Access to Algebra Nation"** or **DA**. There were 63 school districts in this group.

A subgroup of the Algebra Nation using districts and schools for which there was evidence of consistent and meaningful usage over the 2017-2018 school year by particular teachers within the schools made up a group called **"Teachers Using Algebra Nation with Fidelity"** or **TUF**. Fidelity was defined to mean that Algebra Nation was used by teachers consistently over the school year and in a manner that addressed the mutual goals of meeting South Carolina College and Career Ready Algebra standards and learning algebra as intended by the Algebra Nation initiative. Consistent use was determined by student and teacher usage data provided by Algebra Nation staff. Teachers in the TUF group had student usage above 1400 as sum of all eleven usage variables for students or 150 as the sum of all twelve usage variable for teachers. The teachers in districts and schools using with fidelity were also informed by information gathered by the research team and Algebra Nation professional development staff. There were 27 districts and 45 schools (29 high schools and 16 middle schools) in this group with 97 teachers (75 from high schools and 22 from middle schools) represented. Scores for the students of teacher in the TUF sample from 2017-2018 were compared to the scores for entire school during the prior year.

To more carefully compare results, a subsample of the TUF teachers was identified consisting of the teachers who taught algebra in both the 2017-2018 school year and the prior year at the same school. There were 22 districts and 34 schools (22 high schools and 12 middle schools) in this group with 60

teachers (43 from high schools and 17 from middle schools) represented. Scores from 2017-2018 for the students of teachers in this subsample of the TUF group were compared to the scores of students during the prior year taught by the same teachers at the same school.

Just over 2,000 middle and high school teachers in the DA group had access to Algebra Nation, but many teachers whose students accessed Algebra Nation were not algebra teachers and many used the resources seldom or inconsistently. For this reason, the scores for the 97 teachers in the TUF group and for the 60 teachers in the subsample group were used to ensure that meaningful Algebra Nation usage occurred.

Districts that did not have access to Algebra Nation were also identified and called “**Districts without Access Algebra Nation**” or **DNA**. There are 18 districts in this group. It must be noted that the two groups (DA and DNA) were not comparable academically as the DNA group had higher mean test scores on the EOCEP Algebra 1 examination in the 2016-2017 school year than the DA group.

The use of Algebra Nation materials, by design, is intended to be flexible. While access is provided to students and teachers, the decisions on how and when to use the materials as well as which of the components to use rested with teachers and their students sometimes with guidance from district level mathematics leaders. For this reason, there was no assurance that teachers or students with access to Algebra Nation actually used the resources particularly in a manner that might impact learning or test scores. In fact, data provided by Algebra Nation staff indicated that many teachers with login credentials seldom made use of the resources. For this reason, the identification of the TUF group that had evidence of usage was determined to be the best method for evaluation impact. The evaluator was not able to match individual student test score performance to students’ Algebra Nation usage because test score data with student identification could not be released for public research purposes by the South Carolina Department of Education. Student identifiable data could be released by individual districts, but a pilot study conducted after the Fall 2017 semester proved that not all districts would respond and even when they did, the match of student data was not always achievable.

Table 2 lists the districts comprising the three sample groups (DA, TUF, and DNA) with the TUF group in the middle column listing schools identified for each district and those in *italics* having teachers who taught algebra at the same school the prior year:

Table 2: Sample Groups for Evaluation

Districts with Access to Algebra Nation (DA)	Districts/Schools for Teachers Using Algebra Nation with Fidelity (TUF)		Districts without Access to Algebra Nation (DNA)
Abbeville	<i>Aiken</i>	<i>Midland Valley High School</i>	Anderson 3
Aiken	<i>Anderson 2</i>	<i>Belton Middle School</i>	Anderson 4
Allendale	<i>Barnwell 19</i>	<i>Blackville-Hilda High School</i>	Anderson 5
Anderson 1	<i>Beaufort</i>	<i>Hilton Head High School</i> <i>McCracken Middle School-</i>	Bamberg 2
Anderson 2	<i>Charleston</i>	<i>RB Stall High School</i>	Clarendon 1
Bamberg 1	<i>Cherokee</i>	<i>Blacksburg High School</i>	Clarendon 2
Barnwell 19	<i>Chesterfield</i>	<i>Cheraw High School</i> <i>McBee High School</i>	Edgefield

Barnwell 29	<i>Colleton</i>	<i>Colleton Co Middle School</i>	Florence 4
Barnwell 45	<i>Dillon 4</i>	<i>Dillon High School</i> <i>Lakeview High School</i>	Florence 5
Beaufort	<i>Dorchester 2</i>	<i>Ashley Ridge High School</i> <i>Fort Dorchester High School</i> <i>Summerville High School</i> <i>Gregg Middle School</i>	Greenwood 52
Berkeley	<i>Florence 1</i>	<i>West Florence High School</i> <i>Southside Middle School</i>	Horry
Calhoun	Florence 3	RE McNair Jr High School	Jasper
Charleston	Greenville	Berea High School	Kershaw
Cherokee	<i>Greenwood 50</i>	<i>Greenwood High School</i> <i>Brewer Middle School</i> <i>Westview Middle School</i>	Lancaster
Chester	<i>Laurens 56</i>	<i>Clinton High School</i>	Marlboro
Chesterfield	<i>Lexington 3</i>	<i>Batesburg-Leesville Middle</i>	Spartanburg 2
Clarendon 3	<i>Lexington-Richland 5</i>	<i>Dutch Fork High School</i> <i>Chapin Middle School</i> <i>Dutch Fork Middle School</i> <i>Irmo Middle School</i>	York 3
Colleton	Newberry	Mid Carolina High School	York 4
Darlington	Oconee	Seneca High School	
Dillon 3	<i>Orangeburg 3</i>	<i>Lake Marion High School</i>	
Dillon 4	Pickens	Pickens High School	
Dorchester 2	<i>Richland 1</i>	<i>AC Flora High School</i> <i>Eau Claire High School</i> <i>St Andrews Middle School</i>	
Dorchester 4	<i>Richland 2</i>	<i>Blythewood High School</i> <i>Richland Northeast High</i> <i>E.L. Wright Middle School</i>	
Fairfield	<i>Spartanburg 6</i>	<i>Dorman High School</i> <i>Dorman Freshman Campus</i>	
Florence 1	<i>Spartanburg 7</i>	<i>Spartanburg High School</i>	
Florence 2	<i>Sumter</i>	<i>Hillcrest Middle School</i>	
Florence 3	<i>Union</i>	<i>Union County High School</i> <i>Sims Middle School</i>	
Georgetown			
Greenville			
Greenwood 50			
Greenwood 51			
Hampton 1			
Hampton 2			
Laurens 55			
Laurens 56			
Lee			

Lexington 1			
Lexington 2			
Lexington 3			
Lexington 4			
Lexington-Richland 5			
Marion 10			
McCormick			
Newberry			
Oconee			
Orangeburg 3			
Orangeburg 4			
Orangeburg 5			
Pickens			
Richland 1			
Richland 2			
Saluda			
Spartanburg 1			
Spartanburg 3			
Spartanburg 4			
Spartanburg 5			
Spartanburg 6			
Spartanburg 7			
Sumter			
Union			
Williamsburg			
York 1			
York 2			

To address the first and primary research question, seven comparisons of EOCEP Algebra 1 examination results were conducted for different groups within the 2016-2017 and 2017-2018 school years.

To examine differences from previous year (2016-2017) to implementation year (2017-2018) when Algebra Nation was available:

DA2018 to DA2017

TUF2018 to TUF2017 and *Subsample*TUF2018 to *Subsample*TUF2017

DNA2018 to DNA2017

To examine differences between districts using or not using Algebra Nation:

DA2018 to DNA2018

TUF2018 to DNA2018 and *Subsample*TUF2018 to DNA2018

The EOCEP Algebra 1 examination was revised significantly for the 2016-2017 administration because new South Carolina College and Career Ready Mathematics standards had been adopted in 2015 and implemented in the 2016-2017 school year. The results of the 2016-2017 examination were significantly lower than results from past years making the 2016-2017 implementation the only one appropriate for

comparison. The 2016-2017 and 2017-2018 EOCEP examinations were statistically equivalent forms allowing for comparison between years.

Mean scores for the districts were used and the statistical significance of differences was tested using a *t*-test with 0.05 as the significance level that indicates a 95% probability that the differences are not zero.

To address the second research question about differential impact on subgroups of learners, mean scores for the students of teachers using Algebra Nation with fidelity (TUF) for particular subgroups during 2017-2018 were compared to the state means for each of the subgroups. The comparison subgroups for which data were made available included:

- **Gender:** Male and Female
- **English Language:** Limited English Proficient (LEP), Non-LEP
- **School Level:** Middle, High
- **Type of Algebra Course:** Algebra 1, Intermediate Algebra
- **Culture/Race:** Hispanic/Latino, American Indian/Alaska Native, Asian, Black/African American, Native Hawaiian/Pacific Islander, White, Two or more races

Lastly, to address the third research question, 2017-2018 mean scores of students taught by teachers using Algebra Nation with fidelity (TUF) were analyzed to determine the degree to which the amount of usage of different Algebra Nation components were related to the examination scores. Algebra Nation usage by the teachers and by the students was analyzed to identify correlation with EOCEP Algebra 1 test scores. The Algebra Nation components examined from data provided by Algebra Nation staff include the following items for teachers and for students.

Teacher Usage:

- Total number of times the teacher logged in during the course
- Total number of reports the teacher generated during the course
- Total number of times teachers posted to students in the course
- Total number of document downloads by the teacher during the course from the teacher area
- Total number of downloads by the teacher from any area during the course
- Total number of downloads by the teacher of independent practice materials during the course
- Total number of downloads of Mini Assessments by the Teacher during the course
- Total number of times the teacher accessed the system teacher area during the course
- Total number of times the teacher logged on to view videos during the course and during school hours
- Total number of times the teacher logged on to view videos during the course and outside of school hours
- Total number of times the teacher viewed videos more than once during school hours during the course.
- Total number of times the teacher viewed videos more than once outside of school hours during the course.

Student Usage:

- Total number of student Logins
- Total number of student Video views during school hours
- Total number of student Video views outside of school hours
- Total number of Test Yourself completed
- Total number of student Wall Posts during school hours
- Total number of student Wall Posts outside school hours
- Total number of Karma Points
- Number of students that started On Ramp but did not finish
- Number of students that completed On Ramp

Mean scores from 2017-2018 for the students of teachers using Algebra Nation with fidelity (TUF) were correlated with the twelve teacher usage variables as well as the nine student usage variables. Examination score means for students of each teacher were regressed on usage variables to determine the relationship using a correlation coefficient of the different Algebra Nation components (the 21 variables) to these mean scores.

EOCEP Algebra 1 examination.

The 2017-2018 End of Course Examination Program Algebra 1 examination served as the cognitive instrument for measuring South Carolina student achievement in algebra and examining the impact of Algebra Nation on students' examination results.

The End of Course Examination Program (EOCEP) is an assessment program implemented by the South Carolina Department of Education for high school courses in English/language arts, mathematics, science, and social studies (Source: <https://ed.sc.gov/tests/high/eocep/>). EOCEP examination results in three areas (English/language arts, mathematics, and science) meet current federal accountability requirements and must be administered to all public high school students by their third year of high school.

The EOCEP Algebra 1 Examination is derived from the 2015-2016 South Carolina College and Career Ready Algebra 1 Standards available at <https://ed.sc.gov/scdoe/assets/File/tests/high/eocep/2015-16-Print-SCCCR-Algebra1Stands.pdf>. The examination is administered to students enrolled in Algebra 1 or in Intermediate Algebra. The administration is untimed. Algebra 1 may be taken in middle or high school and Intermediate Algebra is intended for high school only and follows a course titled Foundations of Algebra.

A Teacher's Guide and Sample Items 14-page booklet developed the Office of Assessment in the South Carolina Department of Education is provided at <https://ed.sc.gov/tests/tests-files/eocep-files/algebra1-teachers-guide-and-sample-items/>. The guide stipulates that the EOCEP Algebra 1 examination consists of 50 items (i.e., test questions) that are described as "multiple-choice or technology-enhanced." The multiple-choice items seem to have four alternatives from which students are to select the one determined to be the correct response. Basic and scientific calculator tools are available of use by students as part of the examination administration as is a graphing tool comparable to a graphing calculator. Students may also use their own graphing calculator if it is not prohibited but must have data cleared.

A “Blueprint” for the 2017-2018 EOCEP Algebra 1 examination is available at <https://ed.sc.gov/tests/tests-files/eocep-files/2017-18-algebra-1-test-blueprint/> and indicates that the examination consists of 21 to 25 items addressing Algebra, 18 to 22 addressing Functions, and 8 to 11 addressing Number and Quantity; Interpreting Data.

The results of the EOCEP Algebra 1 Examination contribute 20% in the calculation of a student’s grade for either the Algebra 1 or Intermediate Algebra course.

Test results are released to the public by the South Carolina Department of Education and those results were used as part of this evaluation as well as results provided to the research team by staff of the Education Oversight Committee of student scores by teacher.

Statewide means by school and district for the EOCEP Algebra examinations administered in 2016-2017 before Algebra Nation and for 2017-2018 were and are available to the public (<https://ed.sc.gov/data/test-scores/state-assessments/end-of-course-examination-program-eocep/>) and used as part of this evaluation. Data on the students for teachers in the TUF group for both the 2016-2017 and 2017-2018 administration were made available to the evaluation team for use in the evaluation.

Table 3 contains a summary of statewide means in 2017-2018 and the prior year for all students as well as for different subgroups. It should be noted that the mean score for all South Carolina decreased by 1.00 points from 2016-2017. This change was significant at the 0.05 level (with p -value less than 0.0001) indicating that statewide the 2017-2018 population of students performed lower than the population from the prior year on equated forms of the examination.

Table 3: EOCEP Algebra 1 Examination Summary Statistics

South Carolina EOCEP Algebra 1 Results	2017-2018			2016-2017		
	Mean	SD	N	Mean	SD	N
ALL STUDENTS	68.4	14.9	60489	69.4	13.4	62655
Male	67.3	15.1	31115	68.5	13.5	31962
Female	69.7	14.5	29251	70.4	13.1	30484
Hispanic or Latino	66.4	13.8	5376	67.7	12.5	5088
Amer Indian or Alaska Native	65.8	14.8	195	66.4	12.5	171
Asian	81.7	15.1	979	80.6	14.0	1001
Black or African American	61.6	12.3	19344	63.5	10.8	20638
Pacific Islander or Hawaiian	68.6	13.2	81	72.3	13.3	76
White	72.6	14.7	32115	73.0	13.5	33438
Two or more races	68.8	14.3	2108	69.9	13.3	2002
Limited English Proficient (LEP)	65.8	14.2	4305	66.8	12.5	4008
Non-LEP	68.6	14.9	56184	69.6	13.4	58647
Algebra 1 (4114)	70.9	14.8	48906	71.7	13.4	49603
Intermediate Algebra (4117)	58.6	9.5	10974	61.6	8.6	12281

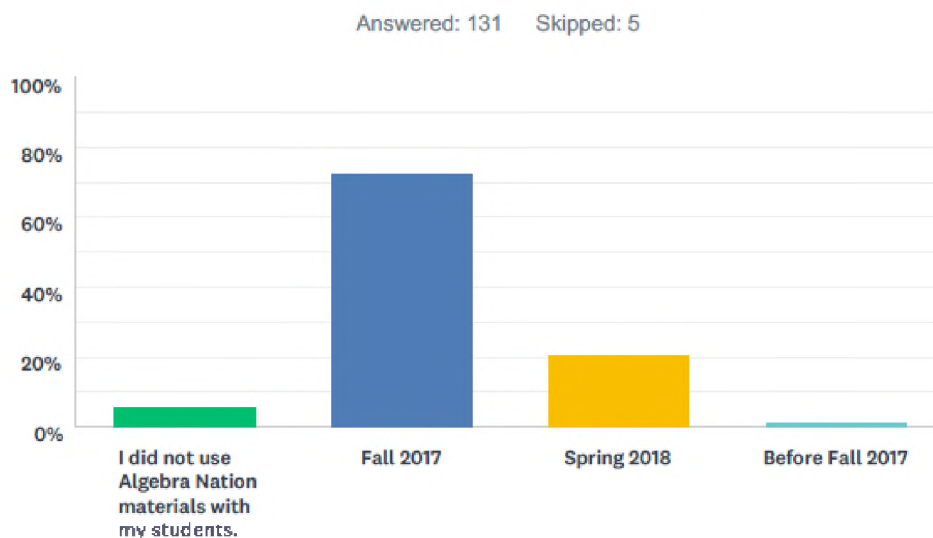
Teacher survey.

Using a survey developed by Dr. Walter Leite for a Florida evaluation of Algebra Nation, Drs. Dickey and Knight of the evaluation team with input from Algebra Nation staff members developed a revised survey that was used for the South Carolina evaluation. The survey consisted of 31 items and was offered electronically using the SurveyMonkey platform as part of an account registered to the Education Oversight Committee staff. A copy of the entire survey is provided in **Appendix A**.

The survey was launched on April 28, 2018, and closed on June 8. Teachers included in the Algebra Nation data base were invited via email to respond. Links were also included with social media postings and reminders were sent weekly. Mathematics supervisors and members of the South Carolina Leaders in Mathematics Education professional organization were also asked to assist in encouraging Algebra Nation using teachers to complete the survey.

A total of 136 responses from teachers were received. The responses represented approximately 6% of the total number of teachers who were had access to Algebra Nation based on the “unique teacher logins” reported. Six of the survey items (Question 25 to 30) addressed respondent demographics. **Question 25** (or **Q25**) ascertained that only 5% of respondents had not used Algebra Nation, 1.5% or 2 respondents had used it in another state prior to this school year, and 21% only began using the resources during the Spring 2018 semester.

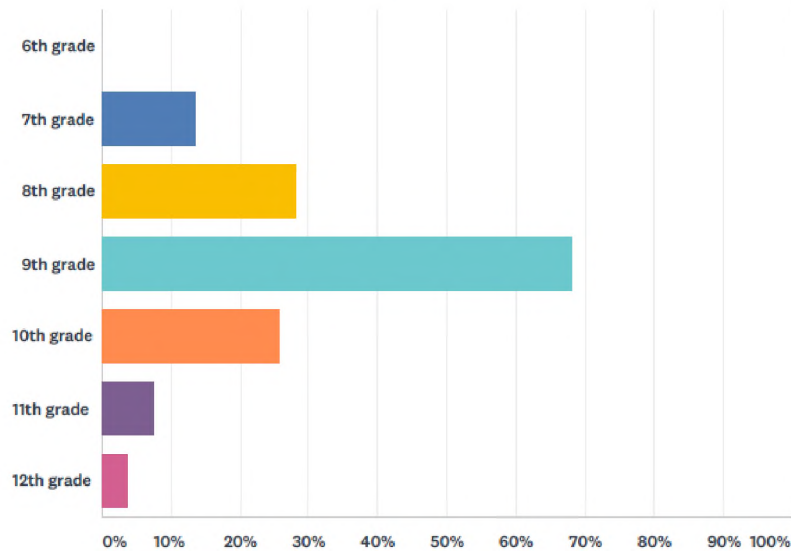
Q25 When did you start using Algebra Nation with your students?



The majority of respondents taught in grade 9 as indicated by the responses to **Question 26**. Teachers of grades 7, 8, 10, 11, and 12 were also represented.

Q26 During 2017-18, in what grades were the students you taught? Mark all that apply.

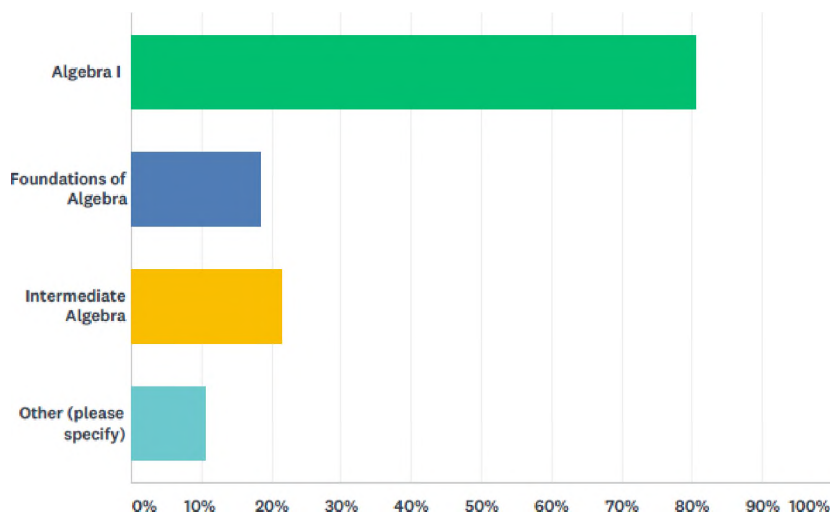
Answered: 132 Skipped: 4



Similarly, in response to **Question 27**, the majority of respondents taught the Algebra 1 course in middle or high school (80%) with approximately 20% teaching both the Foundations of Algebra course and the Intermediate Algebra course. Other courses using Algebra Nation included “Math Essentials” mentioned by 5 respondents and Algebra 2 mentioned by two. Use in other classes like ACT Prep, 8th grade math, or pre-algebra was also cited. The totals and percentages in the graphs summarizing results from Questions 26 and 27 exceed the number of respondents and 100% because respondents were allowed to check as many grades as applied to their situation.

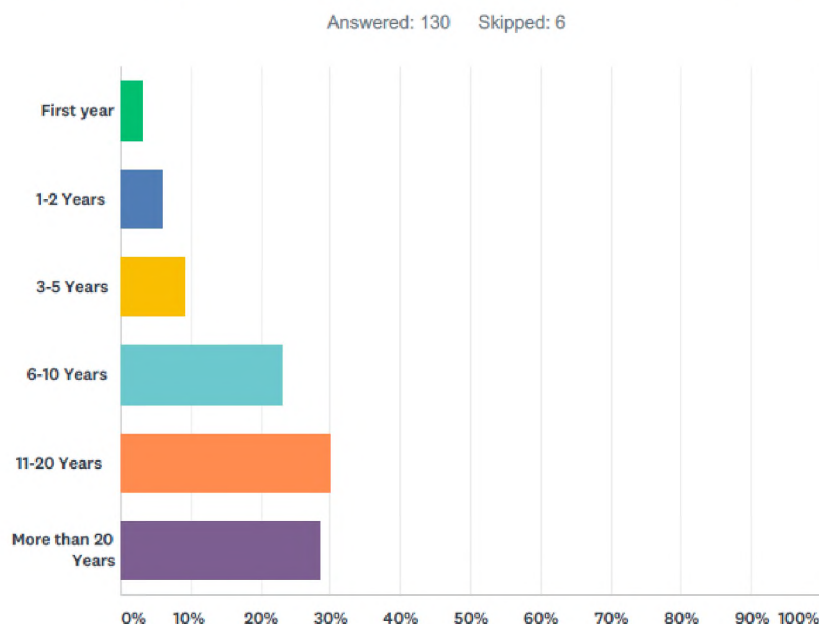
Q27 During 2017-18, in what course did you use Algebra Nation materials?

Answered: 130 Skipped: 6



Most respondents were experienced teachers with 11 or more years of experience (58%) as summarized by the responses to **Question 28**. Only four were in their first year of teaching and only 18% had 5 or fewer years of experience. In response to Questions 29 and 30, 19% of respondents indicated that they were National Board Certified Teachers and 11.5% were certified as mathematics teachers through alternative programs such as PACE, ABCTE, or Teach for America).

Q28 How many years have you taught prior to this year (2017-18)?



Class observation protocol.

Class observations were conducted by Drs. Ed Dickey and Rainey Knight. Potential teachers for observation were suggested by members of the South Carolina Leaders in Mathematics Education as well as from Algebra Nation professional development staff. Teachers were contacted by Dr. Dickey and asked to volunteer to be observed. If agreeing, each provided scheduling information for class days and times that would include the use of Algebra Nation as part of algebra instruction.

An observation report with pictures documented the instructional experience. For 8 of the 10 observations, the *Mathematics Classroom Observation Protocol for Practices (MCOP²)* instrument was used to measure the degree of alignment of the instruction to various practice standards including the ***South Carolina College and Career Ready Standards for Mathematics*** as well as practices or processes expected in standards promulgated by national organizations such as NCTM. Two of the observations were conducted in November 2017 as part of planned Algebra Nation media events with dignitaries and television cameras in the classroom, so the lessons were not assessed using the observation instrument. A copy of the MCOP² instrument is provided in **Appendix B** and the 10 observation reports along with completed MCOP² forms are provided in **Appendix C**.

Results

EOCEP Algebra 1 Examination

The tables in this section contain the results on the EOCEP Algebra 1 examination for schools and districts in the three samples identified for this evaluation: **Districts with Access to Algebra Nation (DA)**, **Teachers Using Algebra Nation with Fidelity (TUF)**, and **Districts with No Access to Algebra Nation (DNA)**. Data is also provided for subgroups within the samples including school level (middle or high), course (Algebra 1 or Intermediate Algebra), gender, English Language proficiency, and culture/race. Discussion and conclusions drawn from this data with respect to the first three research questions of this evaluation study are provided in the section that follows.

DA2018 to DA2017

Table 4 provides means, standard deviations (**SD**), and numbers of students tested (**N**) from 2017-2018 and from the prior year for school districts with access to Algebra Nation materials along with means for the districts and the statewide means. Access alone did not ensure that usage was active or sustained over the school. (* indicates a statistically significant difference from the prior year.)

Table 4: Statistics for Districts with Access to Algebra Nation

Districts with Access to Algebra Nation (DA)	2017-2018 EOCEP Algebra 1 Results			2016-2017 EOCEP Algebra 1 Results		
	Mean	SD	N	Mean	SD	N
Abbeville	77.5	15.1	189	75.5	13.7	216
Aiken	65.8*	13.4	2097	68.4	11.9	2282
Allendale	56.9	12.5	96	59.5	9.3	79
Anderson 1	72.2	15.8	791	73.3	13.6	774
Anderson 2	62.2	11.6	273	61.8	9.0	169
Bamberg 1	70.5	13.7	92	71.2	14.1	122
Barnwell 19	64.0	12.3	44	62.3	7.1	47
Barnwell 29	62.3*	12.5	82	67.3	11.4	71
Barnwell 45	62.3	12.3	155	65.0	13.6	198
Beaufort	72.2*	14.3	1477	70.0	12.6	1700
Berkeley	68.1*	14.5	2699	69.8	12.3	2737
Calhoun	62.8*	11.0	120	68.3	9.3	93
Charleston	71.3*	15.6	3965	72.4	14.2	3987
Cherokee	65.3*	12.9	650	68.7	12.6	705
Chester	60.8*	11.5	533	64.0	10.8	371
Chesterfield	66.0	14.2	519	67.3	12.7	643
Clarendon 3	67.5	11.8	88	66.7	9.7	131
Colleton	59.5*	12.0	401	63.4	11.3	426
Darlington	63.8*	13.2	778	66.2	10.6	840
Dillon 3	72.4*	11.2	99	66.1	9.6	151
Dillon 4	68.5	12.7	302	67.4	12.1	284

Dorchester 2	70.3	15.6	2084	70.5	13.6	2146
Dorchester 4	61.8	11.3	163	61.8	8.4	166
Fairfield	61.4*	13.1	169	65.6	11.6	201
Florence 1	65.5	13.5	1299	65.6	11.8	1533
Florence 2	67.4*	11.7	100	63.7	11.1	148
Florence 3	59.7*	11.8	181	67.9	11.4	132
Georgetown	64.5	13.1	700	65.4	12.1	865
Greenville	69.9*	15.3	5949	71.8	14.2	6054
Greenwood 50	66.8	14.9	549	67.0	13.5	611
Greenwood 51	60.8*	11.7	56	65.6	10.7	96
Hampton 1	61.5*	11.8	182	70.0	9.8	123
Hampton 2	58.6	12.1	34	60.7	7.7	72
Laurens 55	63.5	13.6	423	64.8	11.9	476
Laurens 56	64.0	11.0	244	63.3	10.8	177
Lee	56.4*	12.1	126	62.0	9.5	140
Lexington 1	71.7*	13.3	2234	72.5	12.8	2185
Lexington 2	64.9*	15.4	579	66.6	13.8	680
Lexington 3	65.8	11.6	147	67.6	10.0	146
Lexington 4	55.3*	12.0	202	58.9	8.9	273
Lexington-Richland 5	73.0	15.3	1482	73.6	12.6	1505
Marion 10	62.0*	11.9	326	65.2	10.4	335
McCormick	58.5	11.7	68	60.1	10.4	52
Newberry	66.4	13.4	409	66.3	12.3	662
Oconee	68.1*	14.0	885	70.3	12.5	801
Orangeburg 3	63.3	9.9	171	63.0	9.2	188
Orangeburg 4	63.0	12.5	270	62.9	10.5	305
Orangeburg 5	59.2*	11.7	434	62.2	11.0	420
Pickens	68.2*	15.5	1159	71.0	14.1	1246
Richland 1	63.4*	15.2	1758	65.5	13.7	1776
Richland 2	70.3	14.8	2224	70.6	12.8	2115
Saluda	64.9	14.3	159	66.0	12.4	207
Spartanburg 1	72.0*	12.9	405	75.4	13.2	459
Spartanburg 3	63.9*	13.2	294	71.6	12.6	251
Spartanburg 4	73.7	15.7	185	75.4	13.1	213
Spartanburg 5	72.0*	13.1	696	73.5	12.5	612
Spartanburg 6	69.2	15.6	1030	70.0	13.4	924
Spartanburg 7	66.1*	14.0	543	69.6	12.6	538
Sumter	61.3	12.8	1221	61.2	11.4	1394
Union	61.8*	13.9	309	64.0	10.9	381
Williamsburg	56.6*	11.5	273	61.1	10.0	281
York 1	65.4*	11.9	418	67.1	11.3	408
York 2	73.6*	14.2	753	75.1	11.9	678
Mean (weighted)for All DA	67.9*	14.2	46343	69.2	12.7	48001
State Mean	68.4*	14.9	60489	69.4	13.3	62655

TUF2018 to TUF2017

The 2017-2018 results in **Table 5** represent the means scores, standard deviations, and number tested of students taught by one to six teachers at the listed schools who were selected through usage data and other information for having used Algebra Nation materials with fidelity. The 2016-2017 results are the means, standard deviations, and numbers tested for the schools including all algebra teachers based on all students tested. Means for the sample as well as for students in different school levels and courses are also included at the bottom of the table. (* indicates a statistically significant difference from the prior year.)

Table 5: Statistics for Schools with Teachers Using Algebra Nation with Fidelity

Schools with Teachers Using Algebra Nation with Fidelity (TUF)	2017-2018 EOCEP Algebra 1 TUF Results			2016-2017 EOCEP Algebra 1 School Results		
	Mean	SD	N	Mean	SD	N
Aiken: Midland Valley HS	57.3*	8.4	253	62.7	7.7	321
Anderson 2: Belton MS	74.8	10.0	53	72.9	8.8	73
Barnwell 19: Blackville-Hilda HS	64.4	12.9	52	62.3	7.1	47
Beaufort: HE McCracken MS	93.1*	7.4	64	78.0	10.7	73
Beaufort: Hilton Head HS	68.0	11.7	153	66.9	8.6	205
Charleston: RB Stall HS	62.0	10.2	312	62.3	9.9	338
Cherokee: Blacksburg HS	58.6*	9.6	34	63.9	9.5	143
Chesterfield: Cheraw HS	65.8	13.3	34	62.7	11.8	155
Chesterfield: McBee HS	61.1	12.5	79	62.4	10.8	138
Colleton: Colleton County MS	75.6	10.5	66	78.7	9.2	49
Dillon 4: Dillon High School	61.1	8.5	78	62.2	7.7	131
Dillon 4: Lakeview High School	65.7*	12.8	70	58.6	8.3	54
Dorchester 2: Ashley Ridge HS	67.5	13.0	409	66.6	9.5	508
Dorchester 2: Fort Dorchester HS	67.3	12.3	367	66.1	10.9	456
Dorchester 2: Summerville HS	64.9	11.5	492	65.2	9.1	652
Dorchester 2: Gregg MS	84.8*	10.6	128	81.5	9.1	116
Florence 1: West Florence HS	63.4	11.4	190	62.6	9.2	423
Florence 1: Southside MS	82.6	11.9	41	79.3	10.7	58
Florence 3: RE McNair Jr HS	74.8*	11.9	26	84.0	9.9	22
Greenville: Berea HS	59.1*	8.6	67	64.5	8.6	145
Greenwood 50: Greenwood HS	62.0	10.5	166	61.5	8.5	265
Greenwood 50: Brewer MS	83.6	11.1	68	80.6	9.6	66
Greenwood 50: Westview MS	81.4	10.6	71	82.8	11.7	77
Laurens 56: Clinton HS	59.3	12.6	70	58.6	8.6	13
Lexington 3: Batesburg-Lees MS	73.6	11.9	52	75.4	9.3	52
Lexington 5: Dutch Fork HS	66.2*	9.7	72	69.0	8.2	237
Lexington 5: Chapin MS	85.6	11.0	246	80.6	9.9	255
Lexington 5: Dutch Fork MS	86.0	10.5	22	81.9	10.8	257
Lexington 5: Irmo MS	79.0*	10.0	95	83.3	9.7	144

Newberry: Mid Carolina HS	64.1	10.9	55	63.8	8.9	221
Oconee: Seneca HS	58.0*	8.1	59	64.6	6.9	151
Orangeburg 3: Lake Marion HS	61.2*	9.0	89	64.2	8.9	134
Pickens: Pickens HS	61.7	10.1	134	61.6	7.9	181
Richland 1: AC Flora HS	59.8	11.6	215	59.1	8.5	269
Richland 1: Eau Claire HS	57.5	10.9	73	57.9	7.4	96
Richland 1: St Andrews MS	70.3	9.2	25	73.1	9.0	29
Richland 2: Blythewood HS	63.8*	12.6	43	68.0	8.5	361
Richland 2: Richland Northeast HS	64.4*	13.7	213	68.0	9.9	261
Richland 2: EL Wright MS	94.8*	6.6	16	90.0	6.8	34
Spartanburg 6: Dorman HS	57.3	7.4	71	57.0	7.5	287
Spartanburg 6: Dorman Fresh C	68.1*	12.6	338	72.7	9.5	433
Spartanburg 7: Spartanburg HS	64.7	11.1	201	65.9	8.2	353
Sumter: Hillcrest MS	78.7	13.7	28	77.4	10.7	34
Union: Union County HS	53.6*	9.5	116	61.8	7.7	285
Union: Sims MS	75.5	14.7	71	73.1	10.4	64
Means (weighted) for TUF	67.0	13.9	5586	67.0	11.1	8666
High Schools for TUF	63.5*	11.9	4514	64.5	11.3	7263
Middle Schools for TUF	81.8*	12.2	1072	80.2	10.0	1403
Alg 1 Course for TUF	69.4	14.1	4384	69.2	9.9	6549
Int Alg Course for TUF	58.3*	9.0	1202	60.7	7.7	2087

SubsampleTUF2018 to SubsampleTUF2017

For the TUF group, data from 34 schools were matched to the same teachers for the prior school year; teachers who were at the same school and taught Algebra 1 or Intermediate Algebra both years. These results, while for a smaller sample, represent the best control of the teacher variable and to some degree student variables. The test score means, standard deviations, and numbers tested in **Table 6** are reported for one or more teachers at the school who taught Algebra 1 or Intermediate Algebra both in 2016-2017 and in 2017-2018 at the same school. Means for the sample as well as for students in different school levels and courses are also included at the bottom of the table. (* indicates a statistically significant difference from the prior year.)

Table 6; Statistics Subsample of Schools with Teachers Using Algebra Nation with Fidelity

Schools with Teachers Using Algebra Nation with Fidelity (subsample of TUF)	2017-2018 EOCEP Algebra 1 Subsample TUF Results			2016-2017 EOCEP Algebra 1 Subsample TUF Results		
	Mean	SD	N	Mean	SD	N
Aiken: Midland Valley HS	57.4*	8.5	173	64.9	7.9	189
Anderson 2: Belton MS	74.8	10.0	53	72.9	8.8	73
Barnwell 19: Blackville-Hilda HS	64.4	12.9	52	62.3	7.1	47
Beaufort: HE McCracken MS	93.1*	7.4	64	81.2	13.4	94
Beaufort: Hilton Head HS	61.9	7.7	50	63.2	5.6	38
Charleston: RB Stall HS	63.6*	10.2	241	67.6	9.1	99
Cherokee: Blacksburg HS	58.6	9.6	34	57.5	9.3	41
Chesterfield: Cheraw HS	65.8	13.3	34	63.6	11.4	147
Colleton: Colleton County MS	75.6	10.5	66	78.7	9.2	49
Dillon 4: Dillon High School	61.1*	8.5	78	66.2	10.4	97
Dorchester 2: Ashley Ridge HS	63.4	11.3	236	64.0	7.9	216
Dorchester 2: Fort Dorchester HS	67.8	12.3	250	67.6	11.5	323
Dorchester 2: Summerville HS	65.9*	11.8	390	64.4	9.9	414
Dorchester 2: Gregg MS	84.8*	10.6	128	81.5	9.1	116
Florence 1: West Florence HS	63.4	11.4	190	64.9	10.8	151
Florence 1: Southside MS	82.6	11.9	41	84.4	10.0	32
Greenwood 50: Brewer MS	83.6	11.1	68	80.6	9.6	66
Laurens 56: Clinton HS	59.3	12.6	70	55.6	7.4	40
Lexington 3: Batesburg-Lees MS	73.6	11.9	52	75.4	9.3	52
Lexington 5: Dutch Fork HS	64.4*	9.2	40	70.6	9.8	56
Lexington 5: Chapin MS	85.8*	11.1	225	80.6	9.9	255
Lexington 5: Irmo MS	79.0	10.0	95	80.7	9.2	74
Orangeburg 3: Lake Marion HS	64.1	9.1	37	66.0	9.5	48
Richland 1: AC Flora HS	55.1	9.4	40	55.4	7.8	37
Richland 1: Eau Claire HS	56.6	10.1	45	59.9	7.4	48
Richland 1: St Andrews MS	70.3	9.2	25	72.6	10.2	18
Richland 2: Blythewood HS	63.8*	12.6	43	71.2	8.5	57
Richland 2: Richland Northeast HS	67.7	15.2	111	65.0	8.9	93
Spartanburg 6: Dorman HS	58.7	4.3	22	56.6	9.2	18
Spartanburg 6: Dorman Fresh C	69.3*	12.6	174	72.9	9.2	178
Spartanburg 7: Spartanburg HS	64.7	11.1	201	66.8	9.0	149
Sumter: Hillcrest MS	78.7	13.7	28	77.4	10.7	34
Union: Union County HS	51.3*	10.2	61	62.9	11.3	159
Union: Sims MS	75.5	14.7	71	73.1	10.4	64
Means (weighted) for Subsample	68.5	14.3	3497	68.8	11.8	3475
High Schools for Subsample	63.8*	11.8	2581	65.3	10.2	2596
Middle Schools for Subsample	81.6*	12.3	916	79.0	10.3	879
Alg 1 Course for Subsample	70.9	14.5	2985	70.3	11.8	2844
Int Alg Course for Subsample	59.4*	9.4	379	62.3	9.1	570

DNA2018 to DNA2017

Mean scores, standard deviations, and numbers tested for school districts that did not have access to Algebra Nation material during the 2017-2018 school year are included **Table 7** with results from that year and the prior year. A mean for the 18 districts is provided at the bottom of the table. (* indicates a statistically significant difference from the prior year.)

Table 7: Statistics for Districts with No Access to Algebra Nation

Districts with No Access to Algebra Nation (DNA)	2017-2018 EOCEP Algebra 1 Results			2016-2017 EOCEP Algebra 1 Results		
	Mean	SD	N	Mean	SD	N
Anderson 3	72.1	15.0	163	72.7	12.5	235
Anderson 4	73.1	14.5	256	72.6	13.5	278
Anderson 5	69.3	15.4	1053	70.2	14.4	1056
Bamberg 2	61.7	15.3	50	60.8	10.2	49
Clarendon 1	61.2*	10.0	50	65.3	7.5	64
Clarendon 2	64.0*	15.2	166	67.8	13.6	215
Edgefield	67.6*	15.0	246	71.3	12.4	242
Florence 4	56.5*	9.6	36	62.6	8.0	45
Florence 5	70.2	11.8	69	70.5	11.1	112
Greenwood 52	69.1	12.5	115	66.5	12.3	153
Horry	73.0*	14.8	3691	71.7	13.7	3931
Jasper	55.4	10.3	149	55.8	7.7	142
Kershaw	66.3	12.9	788	66.8	11.3	874
Lancaster	68.4	14.9	1081	69.0	13.0	1144
Marlboro	63.6*	13.2	245	60.3	9.8	312
Spartanburg 2	70.6	14.9	796	70.0	12.8	915
York 3	68.2*	13.4	1556	69.3	12.9	1532
York 4	79.4*	13.7	1317	81.5	11.9	1163
Mean (weighted) for All DNA	70.9	14.3	11827	70.8	12.9	12462

DA2018 to DNA2018

To examine differences between districts with and without access to Algebra Nation for the 2017-2018 school year and the prior year, **Table 8** includes the mean scores and other statistics for each. (* indicates a statistically significant higher mean for the DNA and the state mean for the respective year.)

Table 8: Comparison Statistics for Districts with and without Access to Algebra Nation

	2017-2018 EOCEP Algebra 1 Results			2016-2017 EOCEP Algebra 1 Results		
	Mean	SD	N	Mean	SD	N
Districts with Access to Algebra Nation (DA)	67.9	14.2	46343	69.2	12.7	48001
Districts without Access to Algebra Nation (DNA)	70.9*	14.3	11827	70.8*	12.9	12462
State Mean	68.4	14.9	60489	69.4	13.4	62655

TUF2018 to DNA2018 and SubsampleTUF2018 to DNA2018

To examine differences between classes taught by teachers who used Algebra Nation with fidelity to districts without access to Algebra Nation over the past two school years, **Table 9** includes the mean scores and other statistics for each. (* indicates a statistically significant higher mean of the DNA group compared to the TUF group and the TUF subsample as well as the state mean for the respective year.)

Table 9: Comparison Statistics for Use with Fidelity Samples and Districts with No Access

	2017-2018 EOCEP Algebra 1 Results			2016-2017 EOCEP Algebra 1 Results		
	Mean	SD	N	Mean	SD	N
Districts Using Algebra Nation with Fidelity (TUF)	67.0	14.0	5590	67.0	11.1	8666
<i>Subsample</i> of TUF group	68.5	14.3	3497	68.8	11.8	3475
Districts with No Access to Algebra Nation (DNA)	70.9*	14.3	11827	70.8*	12.9	12462
State Mean	68.4	14.9	60489	69.4	13.4	62655

Table 10 and **Table 11** that follow provide the means from the 2017-2018 EOCEP Algebra 1 examination for particular student groups taught by teachers using Algebra Nation with fidelity (TUF). The groups are based on gender (male or female), whether or not students were identified and English Language proficient (LEP or non-LEP), and culture or race (Asian, Hispanic, American Indian/Native American, Black/African-American, Pacific Islander/Native Hawaiian, White, Multi-Racial). Total number of students in the subgroups are include in parentheses under the group label at the top of the tables, and statewide means for the respective groups are provided at the bottom of the tables. Blanks indicate that no students in the subgroup were tested at school.

Table 10: Means for Gender and English Language Student Groups with TUF Sample

Teachers Using Algebra Nation with Fidelity (TUF)	2017-2018 EOCEP Algebra 1 Results			
	Gender		English Language	
	Male (2874)	Female (2700)	LEP (444)	Non-LEP (5033)
Aiken: Midland Valley HS	57.7	56.8	55.9	57.4
Anderson 2: Belton MS	78.0	73.8		74.8
Barnwell 19: Blackville-Hilda HS	62.2	67.7		64.4
Beaufort: HE McCracken MS	92.6	93.5	85.0	93.8
Beaufort: Hilton Head HS	66.2	69.8	65.5	69.9
Charleston: RB Stall HS	61.9	62.1	60.6	62.6
Cherokee: Blacksburg HS	58.3	59.2		58.6
Chesterfield: Cheraw HS	66.1	65.6	76.3	65.6
Chesterfield: McBee HS	61.6	60.5		61.1
Colleton: Colleton County MS	72.7	78.1	67.0	75.7
Dillon 4: Dillon High School	60.1	61.9	64.0	61.1

Dillon 4: Lakeview High School	64.7	67.3	52.0	65.9
Dorchester 2: Ashley Ridge HS	67.0	68.0	57.9	67.6
Dorchester 2: Ft Dorchester HS	66.3	68.4	63.3	67.5
Dorchester 2: Summerville HS	65.0	64.8	57.7	65.1
Dorchester 2: Gregg MS	85.9	93.3		84.8
Florence 1: West Florence HS	63.0	63.8	65.0	63.2
Florence 1: Southside MS	85.0	81.2		82.6
Florence 3: RE McNair Jr HS	67.1	77.6	81.0	74.5
Greenville: Berea HS	58.4	60.2	58.1	59.5
Greenwood 50: Greenwood HS	61.5	62.8	58.6	62.4
Greenwood 50: Brewer MS	79.9	85.0	81.0	83.3
Greenwood 50: Westview MS	82.3	79.6	79.0	81.5
Laurens 56: Clinton HS	57.4	62.1	70.0	59.0
Lexington 3: Batesburg-Lee MS	71.1	76.4		73.6
Lexington 5: Dutch Fork HS	64.3	68.9	62.0	66.3
Lexington 5: Chapin MS	84.8	86.3	73.0	85.6
Lexington 5: Dutch Fork MS	87.4	84.4		86.0
Lexington 5: Irmo MS	78.7	79.3	54.5	79.5
Newberry: Mid Carolina HS	62.9	64.9	55.9	65.7
Oconee: Seneca HS	58.2	57.7	65.5	58.0
Orangeburg 3: Lake Marion HS	61.8	60.7	65.0	61.2
Pickens: Pickens HS	61.5	62.0	65.3	61.7
Richland 1: AC Flora HS	58.7	60.9	51.0	61.0
Richland 1: Eau Claire HS	55.3	58.8		57.5
Richland 1: St Andrews MS	71.0	70.0		70.3
Richland 2: Blythewood HS	66.9	61.1		63.8
Richland 2: Richland NE HS	64.5	64.3	63.8	65.1
Richland 2: EL Wright MS	95.8	93.6	85.0	95.5
Spartanburg 6: Dorman HS	57.1	57.7	57.7	57.2
Spartanburg 6: Dorman Fresh C	68.6	63.6	67.2	68.4
Spartanburg 7: Spartanburg HS	63.7	65.7	64.3	64.7
Sumter: Hillcrest MS	75.7	80.6		78.7
Union: Union County HS	53.6	53.6	49.0	53.7
Union: Sims MS	76.0	75.2		75.5
Mean (weighted) for TUF	66.2	67.9	61.7	67.5
Statewide Means	67.3	69.7	65.8	68.6

Table 11: Means for Culture/Race Student Groups with TUF Sample

Teachers Using Algebra Nation with Fidelity (TUF)	2017-2018 EOCEP Algebra 1 Results						
	Culture/Race						
	Asian (80)	Hispanic (652)	AI/AN (22)	Black (2084)	NH/PI (10)	White (2510)	Multi- Race (190)
Aiken: Midland Valley HS	63.0	56.3	65.0	54.9		58.5	61.0
Anderson 2: Belton MS		77.0		67.5		75.4	70.0
Barnwell 19: Blackville-Hilda HS				64.9		66.8	
Beaufort: HE McCracken MS	96.3	90.7				93.9	86.5
Beaufort: Hilton Head HS	81.5	65.5		60.3		72.0	78.5
Charleston: RB Stall HS	68.0	61.3		61.1		68.8	59.0
Cherokee: Blacksburg HS				57.8		58.4	
Chesterfield: Cheraw HS	81.0	76.3		62.2		68.7	67.0
Chesterfield: McBee HS		46.5	48.0	58.2		62.0	66.3
Colleton: Colleton County MS	74.5	73.3		72.8		78.0	73.5
Dillon 4: Dillon High School		63.3	63.0	61.3		59.1	64.0
Dillon 4: Lakeview High School		50.5	69.8	64.7		66.8	66.1
Dorchester 2: Ashley Ridge HS	67.0	71.6		63.6	61.0	69.7	65.6
Dorchester 2: Ft Dorchester HS	74.9	66.4	67.0	63.6	76.0	70.6	71.9
Dorchester 2: Summerville HS	73.0	63.6	59.8	61.6	54.0	67.4	63.5
Dorchester 2: Gregg MS	87.0	81.2		84.6		85.1	83.5
Florence 1: West Florence HS	77.7	65.0		59.8		67.2	58.3
Florence 1: Southside MS		85.5		77.9		83.8	83.5
Florence 3: RE McNair Jr HS		74.0		68.7		85.6	80.5
Greenville: Berea HS		59.0	52.5	56.8		62.2	61.3
Greenwood 50: Greenwood HS	69.5	61.2		59.7		65.5	
Greenwood 50: Brewer MS	87.7	85.0	74.0	85.6		83.3	79.5
Greenwood 50: Westview MS	79.0	72.0		77.6		82.6	75.3
Laurens 56: Clinton HS		66.7		58.2		60.2	56.8
Lexington 3: Batesburg-Lees MS		79.0		67.0	72.0	74.3	73.5
Lexington 5: Dutch Fork HS	77.0	65.3		65.3	72.0	66.5	63.0
Lexington 5: Chapin MS	86.3	86.1		75.8		85.9	87.0
Lexington 5: Dutch Fork MS		87.0		94.0		85.3	82.5
Lexington 5: Irmo MS	70.5	70.8		79.5	89.0	80.7	67.7
Newberry: Mid Carolina HS		59.7		62.4		67.6	45.0
Oconee: Seneca HS	60.0	57.7		55.6		59.2	59.3
Pickens: Pickens HS		60.5		53.0		62.0	64.7
Richland 1: AC Flora HS	51.3	52.3		58.9		65.3	63.0
Richland 1: Eau Claire HS		59.0		57.1			81.0

Richland 1: St Andrews MS		77.0		69.9		67.0	73.0
Richland 2: Blythewood HS				59.8		68.6	89.0
Richland 2: Richland NE HS	74.7	64.5	55.0	62.5	65.0	75.4	73.4
Richland 2: EL Wright MS	92.5	92.5		91.5		97.4	
Spartanburg 6: Dorman HS	55.0	58.6		57.4		56.7	59.0
Spartanburg 6: Dorman Fresh C	79.6	69.1	78.7	62.5		72.2	62.5
Spartanburg 7: Spartanburg HS	78.4	58.8		61.4		71.6	65.0
Sumter: Hillcrest MS	79.0	63.0	51.0	80.5		78.6	87.7
Union: Union County HS		49.0	45.0	53.0		53.9	66.0
Union: Sims MS	96.0	73.0		68.1		78.4	73.3
Mean (weighted) for TUF	77.1	64.5	66.5	62.1	66.4	71.4	68.4
State Means	81.7	66.4	65.8	61.6	68.6	72.6	68.8

- **Gender:** Male and Female
- **English Language:** Limited English Proficient (LEP) Level 1-4, Non-LEP
- **Type of Algebra Course:** Algebra 1, Intermediate Algebra
- **School Level:** middle, high
- **Culture/Race:** Asian, Hispanic/Latino, American Indian/Alaska Native, Black/African American, Native Hawaiian/Pacific Islander, White, Two or more races

Twenty-one (21) usage variables were correlated to the means scores of students of teachers using Algebra Nation with fidelity: 12 addressing teachers' usage and 9 addressing students' usage. Correlation coefficients were calculated to estimate the relationship of each usage variables and with the per-teacher examination score means. **Table 12** and **Table 13** contain the correlation coefficient for the usage variables the probability that the correlation is not 0. (* indicates that the correlation is statistically significant.)

Table 12: Teacher Usage of Algebra Nation Correlated to EOCEP Algebra 1 Examination Scores

Teacher Usage from TUF Group of Algebra Nation Components	Correlation of Usage Variables with Per-Teacher Means from the 2017-2018 EOCEP Algebra 1 Scores	p Values
Total number of times the teacher logged in during the course	0.30*	0.0049
Total number of reports the teacher generated during the course	0.07	0.51
Total number of times teachers posted to students in the course	0.16	0.13
Total number of document downloads by the teacher during the course from the teacher area	0.02	0.82
Total number of downloads by the teacher from any area during the course	0.07	0.52
Total number of downloads by the teacher of independent practice materials during the course	0.02	0.85

Total number of downloads of Mini Assessments by the teacher during the course	0.04	0.71
Total number of times the teacher accessed the system teacher area during the course	0.36*	0.0007
Total number of times the teacher logged on to view Videos during the course and during school hours	0.01	0.94
Total number of times the teacher logged on to view Videos during the course and outside of school hours	0.10	0.36
Total number of times the teacher viewed videos more than once during school hours during the course.	0.00	0.97
Total number of times the teacher viewed Videos more than once outside of school hours during the course.	0.02	0.84

Table 13: Student Usage of Algebra Nation Correlated to EOCEP Algebra 1 Examination Scores

Student Usage of Algebra Nation Components	Correlation of Usage Variables with Per-Teacher Means from the 2017-2018 EOCEP Algebra 1 Scores	<i>p</i> Values
Total number of student Logins	0.09	0.39
Total number of student Video views during school hours	-0.01	0.94
Total number of student Video views outside of school hours	0.48*	< 0.0001
Total number of Test Yourself completed	0.49*	< 0.0001
Total number of student Wall Posts during school hours	0.14	0.20
Total number of student Wall Posts outside school hours	0.26*	0.016
Total number of Karma Points	0.28*	0.01
Number of students that started On Ramp but did not finish	-0.17	0.11
Number of students that completed On Ramp	0.01	0.93

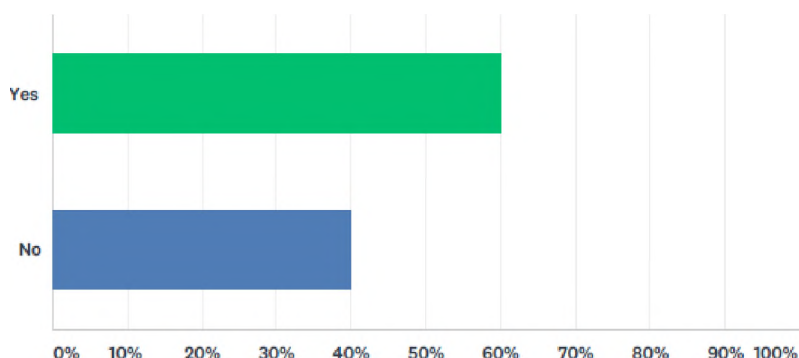
Teacher Survey

Data gathered from Questions 1 to 23 of the Algebra Nation Teacher Survey (copy provided in **Appendix A**) along with the final open-ended comments Question 31 are presented in this section. Discussion and conclusions drawn from this data with respect to the final three research questions of this evaluation study are provided in the section that follows.

The first question (**Question 1** or Q1) assessed the degree to which respondents used Algebra Nation over the school year with 60% of respondents indicating use of Algebra Nation at least once every two weeks.

Q1 Did you use Algebra Nation to teach your students at least once every two weeks?

Answered: 135 Skipped: 1



Question 2 asked for input from those who answered “No” to **Question 1** on why their usage was less frequent than once every two weeks. 64 teachers responded with explanations.

Q2 If you answered NO, why did you not or what prevented you from using Algebra Nation with your students at least once every two weeks?

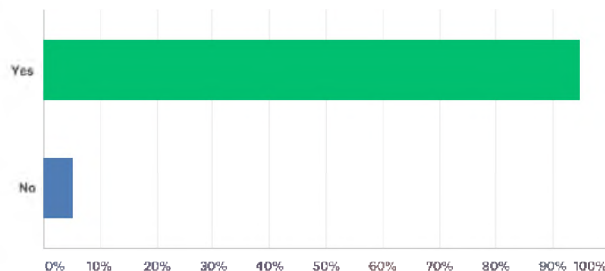
Answered: 64 Skipped: 72

About 30% (19) indicated that they found Algebra Nation **difficult to use or challenging to implement**. About 19% (12) indicated **preferring other products or curriculum** and a comparable number (11) indicated that their use was less frequent than every two weeks because they chose to use Algebra Nation to **review or to supplement instruction** at different times during the school year. About 12% (8) indicated **technology access or reliability** prevented more frequent use, and about 10% (6) indicated their school or district **curriculum sequence or pacing guide** did not allow for more use.

In **Question 3**, nearly all respondents indicated that their students had access to the Algebra Nation printed Workbook:

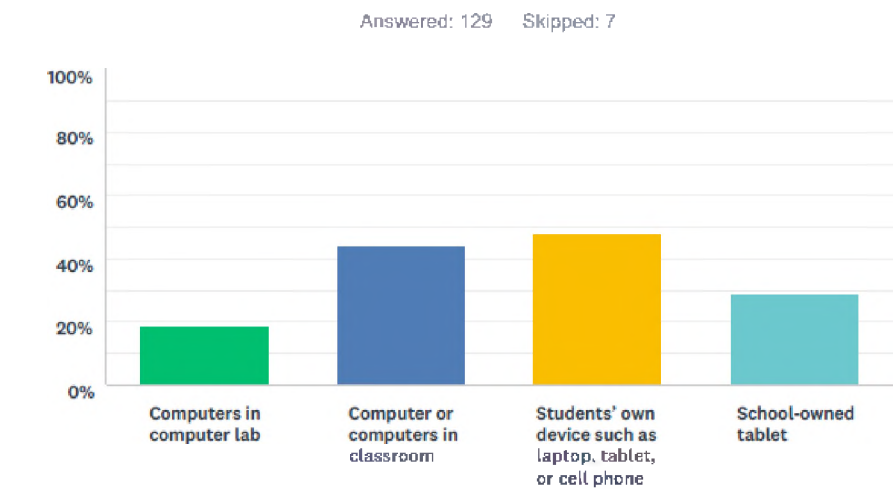
Q3 Did your students have access to the printed Algebra Nation Workbook?

Answered: 136 Skipped: 0

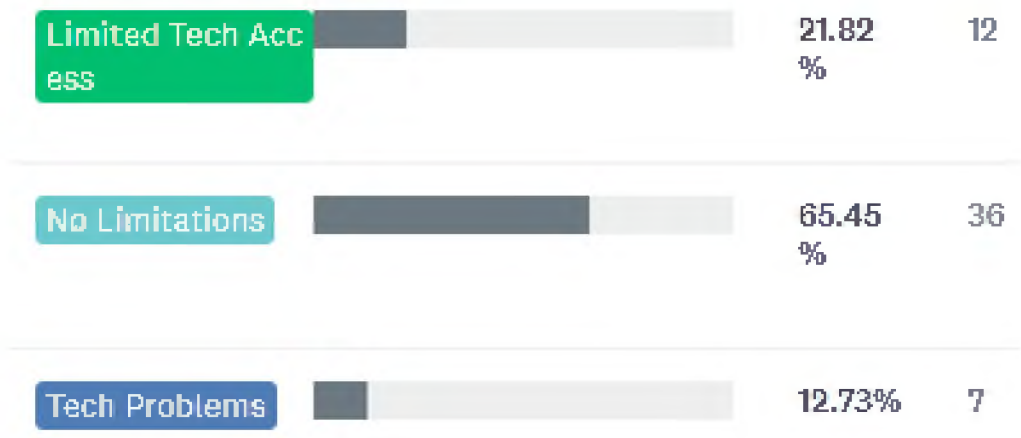


Respondents provided information on how they or their students accessed Algebra Nation through **Question 4**.

Q4 Which medium did you or your students primarily use to access the Algebra Nation electronic materials (videos, Test Yourself, On-Ramp, the Wall) whether in your classroom or elsewhere. Mark all that apply.



Students' own devices or classroom computers were the most widely used and nearly 30% of respondents indicated use of school owned tablets. Comments about access were made by 55 respondents and the majority (36 commenting respondents or 65% of those commenting) indicated having **no limitations**. **Limited access to technology at school or home** was mentioned by 12 (22%) respondents and **technical problems** such as log-in or videos not functions were mentioned by 7 (13%).



Question 5 addressed the use of the instructional videos as part of whole class instruction.

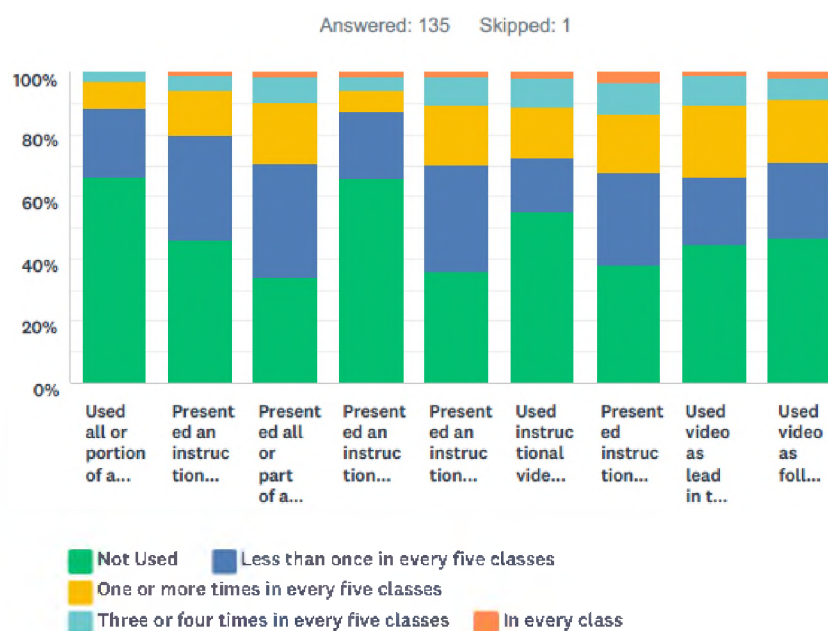
Q5 How frequently do you show Algebra Nation instructional videos to your entire class (perhaps through projection)?



Most respondents (54%) used the videos for whole class instruction, with 23% using then one or more times in every five classes. Videos were not used as whole class instruction by 46% of respondents.

Question 6 gathered data on how teachers used the instructional videos. Most respondents (66%) indicated using all or part of a video as a lesson component, to reinforce concepts, or as an alternative teaching strategy.

Q6 Indicate the extent to which you used the strategies in the left-column below as part of showing the Algebra Nation instructional videos to your entire class:

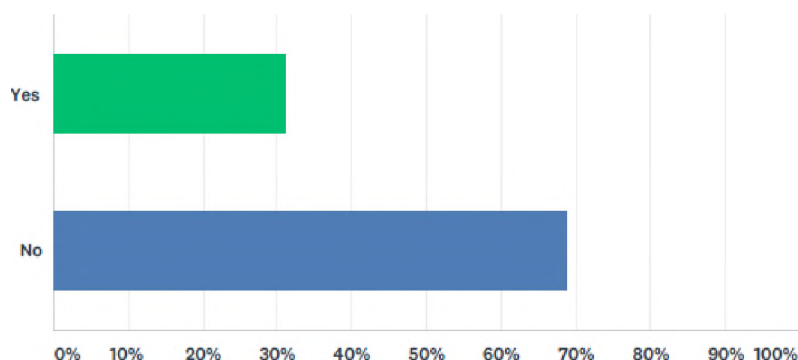


	NOT USED	LESS THAN ONCE IN EVERY FIVE CLASSES	ONE OR MORE TIMES IN EVERY FIVE CLASSES	THREE OR FOUR TIMES IN EVERY FIVE CLASSES	IN EVERY CLASS	TOTAL
Used all or portion of an instructional video as a bell ringer/warmup activity.	66.17% 88	22.56% 30	8.27% 11	3.01% 4	0.00% 0	133
Presented an instructional video prior to my own lesson instruction.	45.86% 61	33.83% 45	14.29% 19	5.26% 7	0.75% 1	133
Presented all or part of an instructional video as a component of a lesson I taught.	33.83% 45	36.84% 49	19.55% 26	8.27% 11	1.50% 2	133
Presented an instructional video followed by a quiz.	65.67% 88	21.64% 29	6.72% 9	4.48% 6	1.49% 2	134
Presented an instructional video after teaching a lesson to reinforce concepts.	35.82% 48	34.33% 46	19.40% 26	8.96% 12	1.49% 2	134
Used instructional videos for test review.	54.81% 74	17.78% 24	16.30% 22	8.89% 12	2.22% 3	135
Presented instructional video as alternative or 2nd teaching method.	37.78% 51	29.63% 40	19.26% 26	9.63% 13	3.70% 5	135
Used video as lead in to workbook practice problems.	44.36% 58	21.80% 29	23.31% 31	9.77% 13	0.75% 1	133
Used video as follow-up to workbook practice problems.	46.27% 62	24.63% 33	20.15% 27	6.72% 9	2.24% 3	134

Most respondents (69%) did not establish a learning center for students to use Algebra Nation materials but this strategy was used by 42 (or 31%) of respondents as reported on **Question 7**.

Q7 Have you established a learning center within your classroom where one or more students were required to work on Algebra Nation materials?

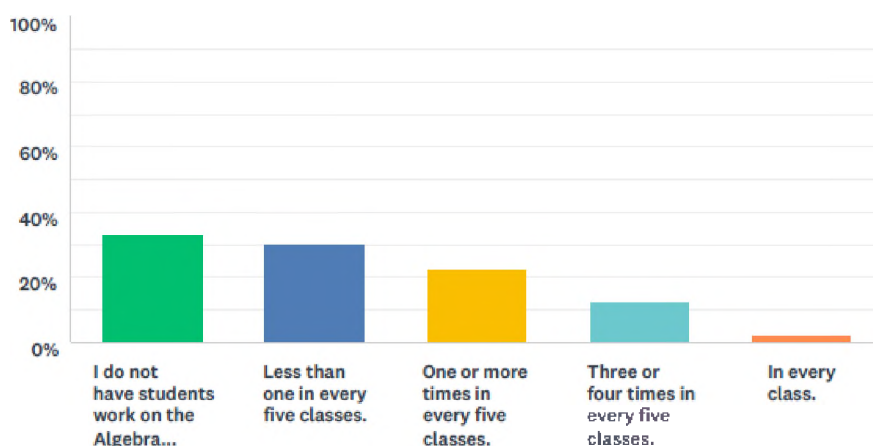
Answered: 135 Skipped: 1



Question 8 provided evidence that the majority (67%) of respondents allowed students access to the Algebra Nation website or app during class time with 20% doing so in every class or at least 3 times in every 5 classes.

Q8 How frequently do you have a student or student groups (2-6 students) work individually on the Algebra Nation website or tablet app during class time?

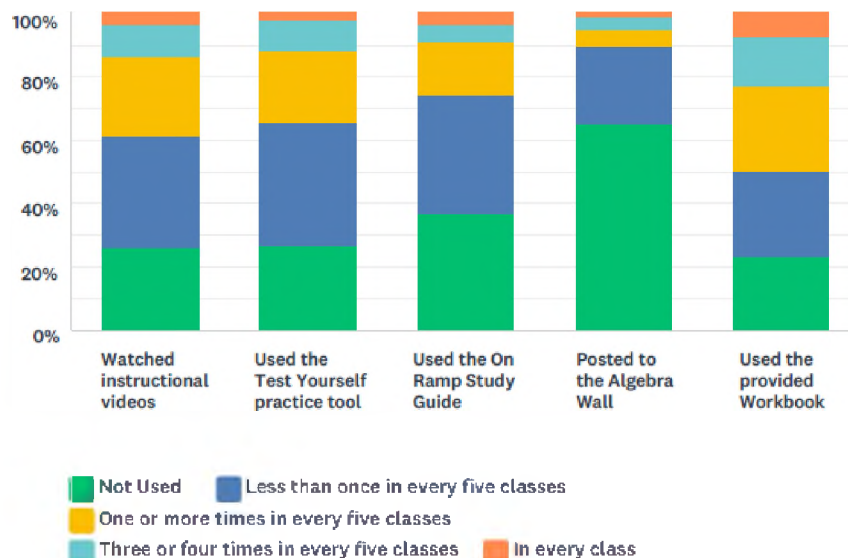
Answered: 134 Skipped: 2



Question 9 followed up on the usage to determine what Algebra Nation features were used. The Workbook was used most extensively (one or more times every 5 classes) by 50% of respondents followed by the use of the instructional videos by 39% and the Test Yourself practice tool by 35%. The On Ramp Study Guide was used one or more times in every 5 classes by 26% and the Algebra Wall used the least (by 10%).

Q9 Indicate how frequently you have a student or student groups worked individually on the following Algebra Nation materials during class time.

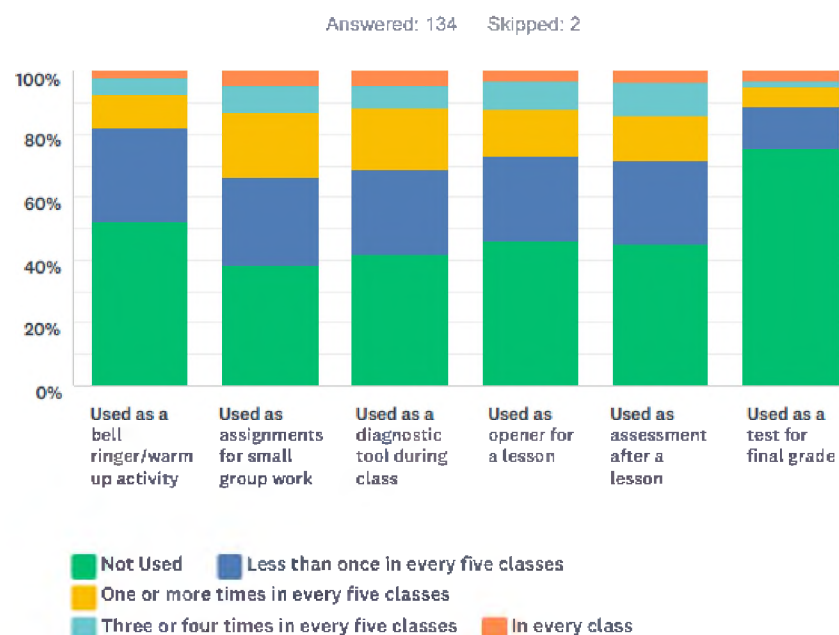
Answered: 135 Skipped: 1



	NOT USED	LESS THAN ONCE IN EVERY FIVE CLASSES	ONE OR MORE TIMES IN EVERY FIVE CLASSES	THREE OR FOUR TIMES IN EVERY FIVE CLASSES	IN EVERY CLASS	TOTAL
Watched instructional videos	26.12% 35	36.07% 47	24.63% 33	10.45% 14	3.73% 5	134
Used the Test Yourself practice tool	26.32% 35	39.10% 52	22.56% 30	9.77% 13	2.26% 3	133
Used the On Ramp Study Guide	36.57% 49	37.31% 50	17.16% 23	5.22% 7	3.73% 5	134
Posted to the Algebra Wall	64.93% 87	24.63% 33	5.22% 7	3.73% 5	1 49% 2	134
Used the provided Workbook	23.13% 31	26.87% 36	26.87% 36	15.67% 21	7.46% 10	134

To gather data on how the popular **Workbook** was used, **Question 10** provided examples from which the respondents selected uses. Using the Workbook as part of “small group work” was the most popular strategy (34%) followed closely by using it as a “diagnostic tool during class” (32%). The Workbook was also widely and often used as an assessment tool after a lesson or as a lesson opener (28% and 27%, respectively). Use as a “bell ringer/warm up activity” or as a test to assign final grades was less popular, with 52% and 75%, respectively not using the Workbook for these purposes.

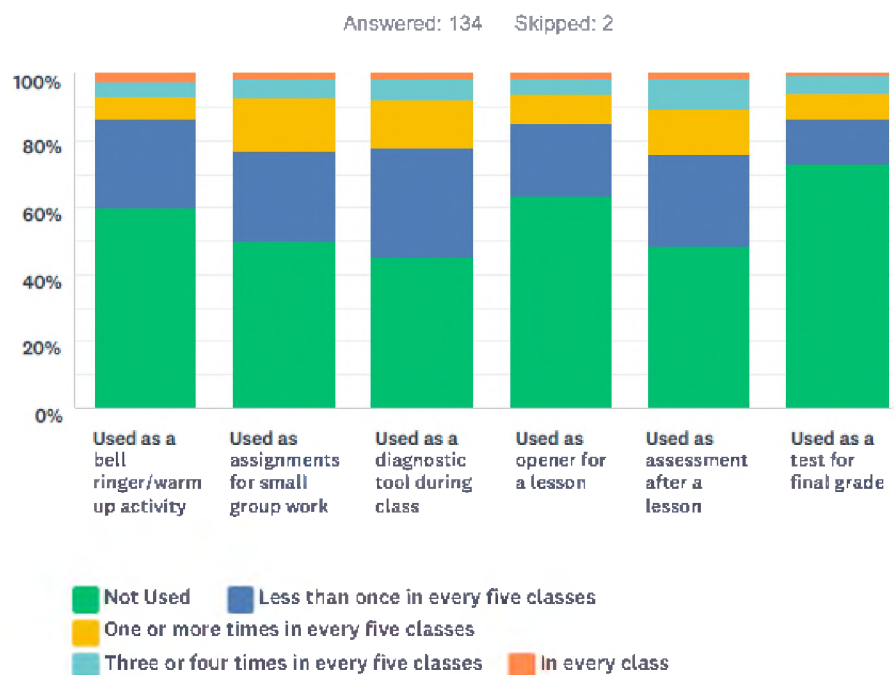
Q10 Indicate the extent to which you used the strategies in the left-column below as part of instruction with Algebra Nation printed Workbook practice problems:



	NOT USED	LESS THAN ONCE IN EVERY FIVE CLASSES	ONE OR MORE TIMES IN EVERY FIVE CLASSES	THREE OR FOUR TIMES IN EVERY FIVE CLASSES	IN EVERY CLASS	TOTAL
Used as a bell ringer/warmup activity	52.24% 70	29.85% 40	10.45% 14	5.22% 7	2.24% 3	134
Used as assignments for small group work	38.35% 51	27.82% 37	21.05% 28	8.27% 11	4.51% 6	133
Used as a diagnostic tool during class	41.35% 55	27.07% 36	20.30% 27	6.77% 9	4.51% 6	133
Used as opener for a lesson	45.86% 61	27.07% 36	15.04% 20	9.02% 12	3.01% 4	133
Used as assessment after a lesson	44.78% 60	26.87% 36	14.18% 19	10.45% 14	3.73% 5	134
Used as a test for final grade	75.37% 101	13.43% 18	5.97% 8	2.24% 3	2.99% 4	134

Similar to Question 10, **Question 11** addressed how respondents used the **Test Yourself Practice Tool**. The usage pattern is comparable to how the Workbook was used with small group and diagnostic work the most popular uses. 55% of respondents indicated using Test Yourself for diagnostic purposes even if in less than 1 in every 5 classes.

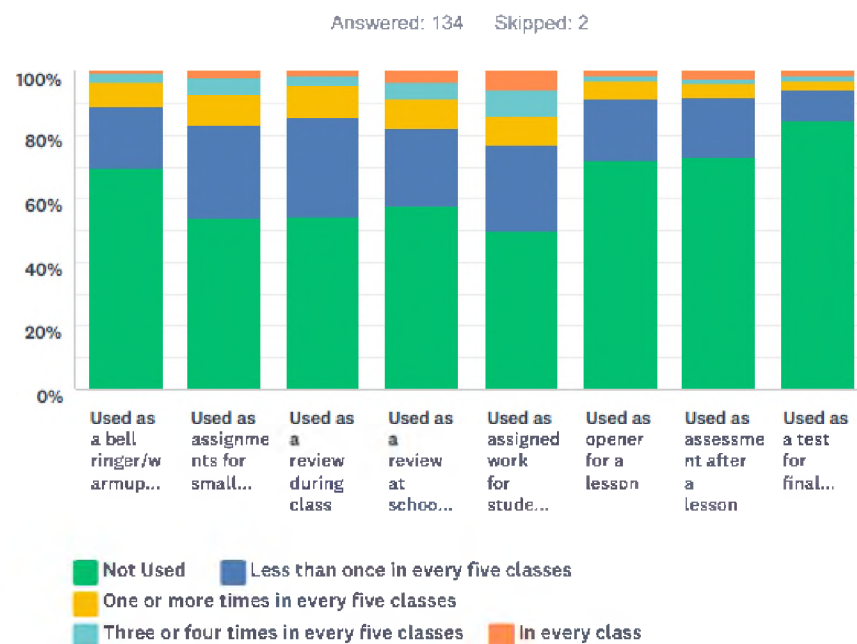
Q11 Indicate the extent to which you used the strategies in the left-column below as part of instruction with Algebra Nation Test Yourself Practice Tool:



	NOT USED	LESS THAN ONCE IN EVERY FIVE CLASSES	ONE OR MORE TIMES IN EVERY FIVE CLASSES	THREE OR FOUR TIMES IN EVERY FIVE CLASSES	IN EVERY CLASS	TOTAL
Used as a bell ringer/warmup activity	60.15% 80	26.32% 35	6.77% 9	4.51% 6	2.26% 3	133
Used as assignments for small group work	50.00% 67	26.87% 36	15.67% 21	5.97% 8	1.49% 2	134
Used as a diagnostic tool during class	44.78% 60	32.84% 44	14.18% 19	6.72% 9	1.49% 2	134
Used as opener for a lesson	63.43% 85	21.64% 29	8.21% 11	5.22% 7	1.49% 2	134
Used as assessment after a lesson	48.51% 65	27.61% 37	13.43% 18	8.96% 12	1.49% 2	134
Used as a test for final grade	73.13% 98	13.43% 18	7.46% 10	5.22% 7	0.75% 1	134

The **On Ramp Study Guide** was not as widely used as the Workbook, videos, or Test Yourself Tool, with fewer than 50% of respondents using it all as documented by responses to **Question 12**. Those who used this tool did so for “assigned work ... at home,” as “review during class,” or as “assignments for small groups.”

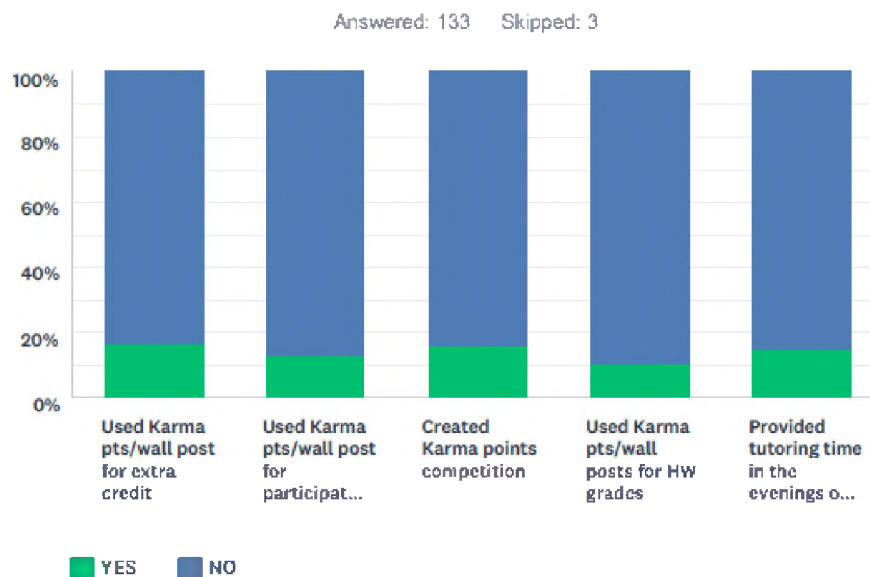
Q12 Indicate the extent to which you used the strategies in the left-column below as part of instruction with Algebra Nation On Ramp Study Guide:



	NOT USED	LESS THAN ONCE IN EVERY FIVE CLASSES	ONE OR MORE TIMES IN EVERY FIVE CLASSES	THREE OR FOUR TIMES IN EVERY FIVE CLASSES	IN EVERY CLASS	TOTAL
Used as a bell ringer/warmup activity	69.40% 93	19.40% 26	7.46% 10	2.99% 4	0.75% 1	134
Used as assignments for small group work	53.73% 72	29.10% 39	9.70% 13	5.22% 7	2.24% 3	134
Used as a review during class	54.14% 72	31.58% 42	9.77% 13	3.01% 4	1.50% 2	133
Used as a review at school but outside of class	57.46% 77	24.63% 33	8.96% 12	5.22% 7	3.73% 5	134
Used as assigned work for student at home	50.00% 67	26.87% 36	8.96% 12	8.21% 11	5.97% 8	134
Used as opener for a lesson	72.18% 96	18.80% 25	6.02% 8	1.50% 2	1.50% 2	133
Used as assessment after a lesson	72.93% 97	18.80% 25	4.51% 6	1.50% 2	2.26% 3	133
Used as a test for final grade	84.50% 109	9.30% 12	3.10% 4	1.55% 2	1.55% 2	129

Question 13 asked respondents whether or not they included incentives for having students use the **Algebra Wall**. Most respondents did not use the Algebra Wall, but between 10% and 17% did so using incentives like extra credit, competition points, or evening tutoring.

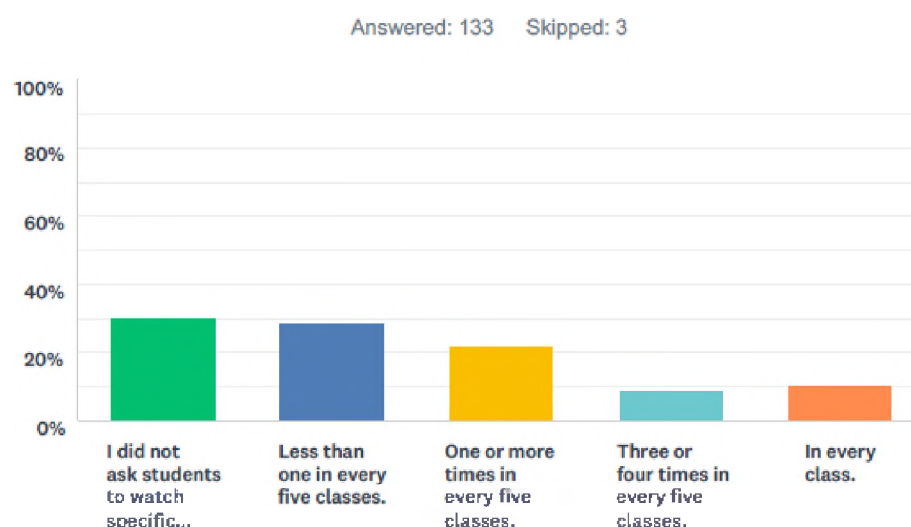
Q13 Indicate whether or not you used the strategies in the left-column below as part of instruction with Algebra Nation Algebra Wall.



	YES	NO	TOTAL
Used Karma pts/wall post for extra credit	16.54% 22	83.46% 111	133
Used Karma pts/wall post for participation pts	12.78% 17	87.22% 116	133
Created Karma points competition	15.79% 21	84.21% 112	133
Used Karma pts/wall posts for HW grades	9.77% 13	90.23% 120	133
Provided tutoring time in the evenings on the Algebra Wall	15.15% 20	84.85% 112	132

Regarding the use of the **instructional videos at home or outside of the classroom**, 70% of respondents indicated in response to **Question 14** that they asked or expected their students to view videos outside of class. 11% had this expectation every school day and over 30% for 1 to 4 of every 5 classes.

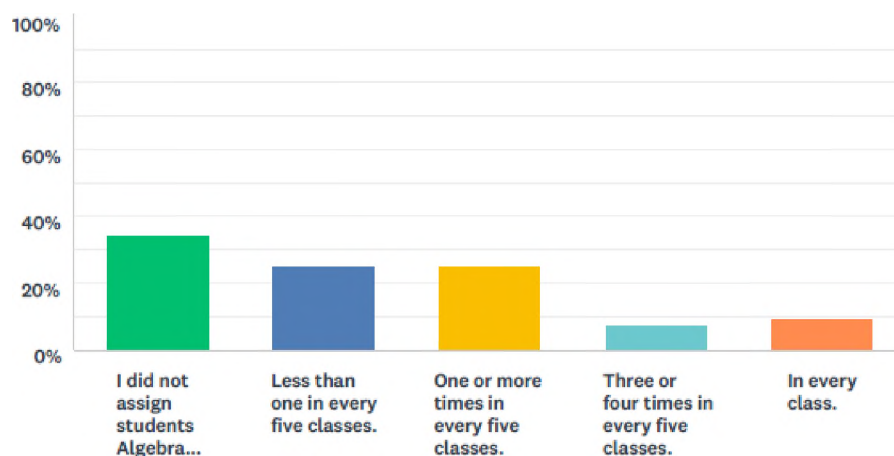
Q14 Indicate the extent to which you asked your students to watch specific Algebra Nation instructional videos at home or outside your classroom.



Similarly for the **Workbook** addressed in **Question 15**, 66% of respondents expected their students to use this resource as part of homework, and 10% required its use as homework in every class with 32% using it between 1 and 4 of every 5 classes. The **Test Yourself** tool was not used as much as the **Workbook** but 53% of respondents indicated in **Question 16** that they used it some, with 33% using it at least once in every five classes.

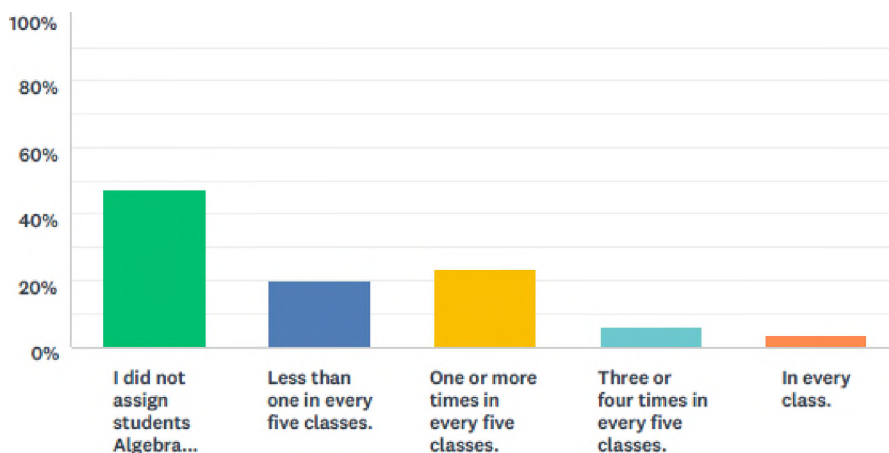
Q15 Indicate the extent to which you assigned your students Algebra Nation printed Workbook practice problems as homework.

Answered: 133 Skipped: 3



Q16 Indicate the extent to which you assigned your students Algebra Nation printed Test Yourself tool as homework.

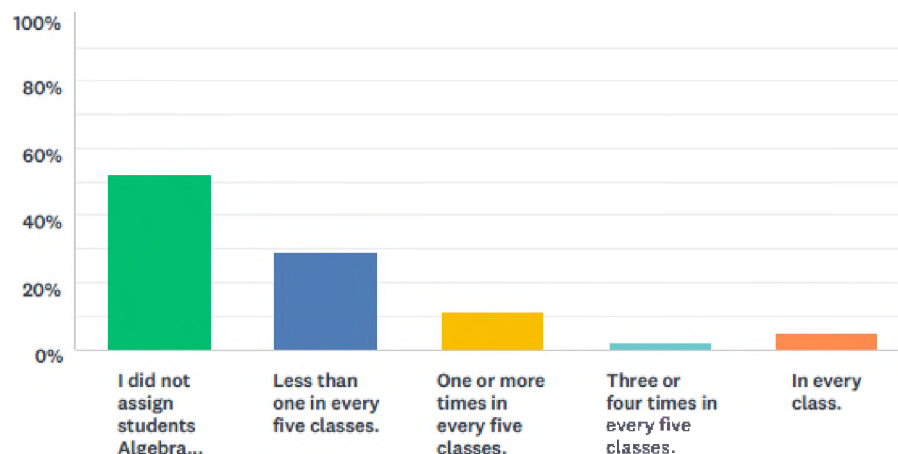
Answered: 134 Skipped: 2



Lastly the **On Ramp Study Guide** was assigned as homework by 47% of respondents and when used, typically used less than once in every five classes as indicated by responses to **Question 17**.

Q17 Indicate the extent to which you assigned your students Algebra Nation On Ramp Study Guide as homework.

Answered: 134 Skipped: 2



To gather data on how Algebra Nation was used for remediation with students who might be struggling or falling behind in algebra, **Question 18** provided nine examples of instructional techniques respondents might have used and the option of indicating non-use. 74% of respondents did use Algebra Nation for remediation. The **Workbook** for practice (47%) and the **instructional videos** assigned to particular students to watch at school (44%) were the most widely used techniques.

Q18 Indicate the extent to which used Algebra Nation as a remediation tool with your students who might have struggled or were falling behind. Mark all that apply.

Answered: 133 Skipped: 3

ANSWER CHOICES	RESPONSES	
I did not use Algebra Nation as a remediation tool.	26.32%	35
I assigned specific Algebra Nation instructional video to particular students as homework.	31.58%	42
I assigned specific Algebra Nation Workbook practice to particular students as homework.	35.34%	47
I assigned specific Algebra Nation On Ramp videos to particular students as homework.	17.29%	23
I assigned specific Algebra Nation On Ramp Study Guides to particular students as homework.	15.79%	21
I assigned specific Algebra Nation instructional video to particular students to watch at school.	44.36%	59
I assigned specific Algebra Nation Workbook practice to particular students to use at school.	46.62%	62
I assigned specific Algebra Nation On Ramp videos to particular students to watch at school.	27.07%	36
I assigned specific Algebra Nation On Ramp Study Guides to particular students to use at school.	18.80%	25
I provided before or after school assistance for students using Algebra Nation resources.	31.58%	42
Total Respondents: 133		

Question 19 provided space for respondents to indicate what each perceived to be the “**main strength of Algebra Nation.**” 88% of respondents provided examples and comments. By far (41% or 49 responses) respondents cited the **varied instruction** included as part of the videos and as a supplement to their own teaching as the main strength. Respondents (17% or 20) also cited the **videos**. Sample comments included:

- “The variety of approaches with the different experts and the rigor of the questions.”
- “ Student Choice. Students were invested, because they were allowed to choose the Algebra Expert. They also enjoyed having the workbook in front of them. My students were fully invested in the program.”
- “The main strength of Algebra Nation is that Students get to decide who they want to be their study tutor to cater to their learning needs. Also that students can use the tool at home to get help with things they did not understand in class and reach out to other students like them.”
- “Spanish Teacher ... Time for students to learn/have exposure to material I don't have time for in class. Work ahead of the lesson.”
- “The instructional videos and how they were taught in different levels.”

Other strengths mentioned were the **high expectations** for students found in the materials and the ability to use the materials for **practice and skill building**, each cited by 13% or 16 respondents. Sample comments included:

- “Critical Thinking Problems made easy to understand through one on one approach/pacing with students”
- “Harder questions made them think.”
- “Deep thought questions. Asks questions in ways they have to think. Great preparation for EOC”
- “I've found Algebra Nation to be a great remediation tool. Students being able to get help (through videos with a variety of tutors or the Algebra Wall) outside of class is the biggest benefit I've seen.”
- “Review in a nonthreatening way. Algebra Nation tutorials allow the student multiple reviews without drawing attention to their progress in learning a concept.”

The **Workbook** was also cited by 11% or 13 respondents as a main strength. A sample comment was “Having the online resources and the printed copy made for better integration of lessons into my personal lessons. The workbook and site were easy to navigate and use.”

For **Question 20**, respondents were asked to describe the “**most significant limitation of Algebra Nation.**” 86% of respondents provided examples and comments. “**No limitation**” was cited by 22 or 19% of respondents. The most cited limitation was a **difficulty or challenge to use** the resource by 22 or 19% of respondents. Sample comments included:

- “Not knowing how I could utilize everything AN offered.”
- “I found that I did not have time to familiarize myself with the components of Algebra Nation during my planning time therefore did not use it.”
- “Some of the videos were rather lengthy for certain topics. It is difficult to get a busy high school student to take 30-40 minutes out of their schedule to watch a video. If there was a "mini lesson" section where topics were covered briefly (less than 5 minutes) this would be beneficial. More of a reminder and less of a lesson.”

Also commonly cited were challenges tied to technology access, but these were typically a limitation of the school or district. However, the **lack of available technology** limited teachers' ability to use the resources. 21 or 19% of respondents cited technology access as a limitation. Sample comments included:

- "Lack of technology in school and community"
- "Students were not willing to do at home and some did not have access to the internet."
- "had to sign up for the computer cart (which could be hard as many teachers need the cart)."
- "not all of our students have devices and we are not one to one"

Related to challenges of implementation, 13 or 11% of respondents commented on the difference between **how school or district curriculum is sequenced** differing from how the topics were sequenced in Algebra Nation as a limitation. Sample comments included:

- "The curriculum did not match my pacing guide. I would have to look for where my current content was."
- "The units in Algebra Nation did not correlate well with the units I teach. This made it difficult to utilize the test yourself feature and other features of the program. If I know we will have Algebra Nation next year - then I plan to readjust my units so they correlate better with the program."

Lastly, 12 or 10% of respondents commented that **more student practice resources** are needed and not having more was a limitation. Sample comments included:

- "The limitation would be the lack of practice problems within the workbook. At least three to five more problems per topic would give the students more practice on each topic. A quiz included midway through each section would be a great checkpoint."
- "I wish some of the lessons had a little more practice and additional examples on the assessments and worksheets. But that is just because I really liked the ones provided - i just wanted more! :)"

To assess respondents' perception of the impact of Algebra Nation on students, five yes/no statements were included as part of **Question 21**. Over 95% of responding teachers indicated that Algebra Nation was "**appropriately aligned to the South Carolina Algebra 1 standards**" and that the materials were "**rigorous and appropriately challenging**." 80% of responding teachers indicated that Algebra Nation use "**positively impacted ... students' learning**" in the algebra course they taught. Slightly fewer (67%) felt Algebra Nation "**positively impacted... students' EOCEP Algebra 1 test scores**" and 61% felt they had actually "**found evidence that Algebra Nation [had] a positive impact on test scores, grades, or confidence levels**."

	YES	NO	TOTAL
Appropriately aligned to the South Carolina Algebra 1 standards	96.15% 125	3.85% 5	130
Algebra Nation materials are rigorous and appropriately challenging	95.35% 123	4.65% 6	129
Positively impacted my students' EOCEP Algebra 1 test scores	66.98% 71	33.02% 35	106
Positively impacted my students learning in the algebra course I taught	79.67% 98	20.33% 25	123
I found evidence that Algebra Nation has a positive impact on test scores, grades, or confidence levels	61.06% 69	38.94% 44	113

Comments as part of **Question 21** were provided by 54 or 42% of the respondents. Most (31 or 57%) cited student factors influencing their perceptions of impact. Sample comments included:

- “My students were able to begin feeling more comfortable with the material being presented to them in a variety of ways. They were able to practice the concepts they learned in class and apply them on a computer, which is exactly what the EOC will do.”
- “Students who used Algebra Nation have told me it has helped them better understand concepts.”
- “I feel Algebra Nation has helped my students in persevering through more rigorous problems and application type examples. They won't settle for just making a 70%-- they continue to work towards 100% and are quick to watch solution videos at the end of the Test Yourself! Questions to understand why they missed a specific question. “
- “I have seen students gain confidence in their reading word problems more carefully. I feel confident that my students have a better grasp of these Algebra concepts because of Algebra Nation.”
- “Students are more confident in skills taught previously without the support of algebra nation. I have had students comment on how much they appreciate learning concepts in class and then going home to reinforce skills.”

One respondent offered the following quotes from her or his own students:

- "I like Algebra Nation and I think it is a useful tool. I wish I had this before. It helps me see how I am supposed to work problems out."
- "I love it. It has helped me better understand and get the concept of algebra. Having the help/seeing the explanation of the work "
- "Algebra nation is a really good tool that will help you succeed in Math. It will help you understand the things that you need to understand. The tutors on algebra nation go slow and they break down the material that is being taught so that you can understand it. Algebra nation has helped me on so many different levels. It has helped me in my school work to learn how to solve the equations that I need to solve and it has helped me learn the material better. The way that the tutor Kiana broke everything down and explained it helped me to better understand the material. What I found beneficial about algebra nation was that their [sic] was tutors. The tutor I chose was Kiana. Kiana Broke [sic] everything down and has helped me to learn and understand the material that I didn't understand before. Yes algebra nation is amazing and

anyone who is [sic] having trouble with Math. I highly recommend that they use Algebra Nation."

Teacher related factors, such as how the resources influenced the teacher, were cited by 11 or 20% of those commenting. Sample comments included:

- "It provided with me with more different style of questioning so I could do more questions like that in my lessons and warm ups"
- "Previously, my students struggled with graphing linear inequalities and their systems, but I heavily utilized Algebra Nation videos and activities during this unit, and I saw a tremendous growth in their understanding of this topic"
- "Algebra Nation has exposed our students to a rigorous content. It has pushed me as a teacher to provide that curriculum to my students as well. Algebra 1 is more than just a skill set, it is applying that skill set."

Related to teacher factors, **Question 22** asked respondents to rate four professional support features provided by Algebra Nation. Each of the four features had average ratings in the High or Very High range with no more than 12 respondents rating support as Low or Very Low. Where Very High was assigned 1, High 2, Medium 3, Low 4, and Very Low 5, all averages were between 2.03 and 2.10. Support for teachers and students as well as with technical or curriculum issues were all rated highly by respondents.

Q22 Rate the following professional support features provided by Algebra Nation.

Answered: 123 Skipped: 13

	VERY HIGH	HIGH	MEDIUM	LOW	VERY LOW	TOTAL	WEIGHTED AVERAGE
Support for my use of Algebra Nation resources	41.46% 51	19.51% 24	31.71% 39	4.88% 6	2.44% 3	123	2.07
Technical support for log-in and access issues	38.52% 47	26.23% 32	25.41% 31	6.56% 8	3.28% 4	122	2.10
Technical support for curriculum issues	38.84% 47	23.14% 28	33.06% 40	1.65% 2	3.31% 4	121	2.07
Support for my students' learning of algebra	40.16% 49	23.77% 29	31.16% 38	2.46% 3	2.46% 3	122	2.03

Respondents' opinions on continuing to provide Algebra Nation materials to students and teachers were gathered through **Question 23**. A notable majority, 90%, of respondents indicated that providing Algebra Nation materials, based on the past year's experience, should be a high or moderate priority with 52% indicating a "high priority" and 38% a "moderate priority." 13 or 10% of respondents selected "low priority."

Q23 Which of the following represents your opinion on whether Algebra Nation materials should continue to be provided to South Carolina students and teachers:

Answered: 128 Skipped: 8

ANSWER CHOICES	RESPONSES	
Providing Algebra Nation materials is a high priority because they are essential to my students and me.	51.56%	66
Providing Algebra Nation materials is a moderate priority because they are useful but not essential.	38.28%	49
Providing Algebra Nation materials is a low priority because they are not useful to my students or me.	10.16%	13
TOTAL		128

Question 24 asked for comments on how respondents would improve Algebra Nation materials. 104 respondents offered comments. 27 respondents or 26% of those commenting indicated that no improvement is needed and cited positive features of Algebra Nation.

Some comments included:

- “Every suggestion I have given to Algebra Nation, they have considered and made changes that were appropriate. The Algebra Nation team is very helpful and open to suggestions.”
- “nothing - I think they are fine as is”
- “The workbooks were amazing! I hope this is a resource that we get to keep.”

30 respondents (29% of the total) of those commenting called for more resources to be provided. Sample comments included:

- “More quizzes and test yourself opportunities. “
- “More diagnostics tests that lead students to specific videos and materials. Then another diagnostic to see if they have learned.”
- “The Algebra Nation workbook should include more practice problems within the workbook. At least three to five more problems per topic would give the students more practice on each topic. One or two quizzes included through each section would be a great checkpoint.”
- “Teacher Hard Copy of all Printable Resources (Quizzes, Practice, Etc) “
- “Use it more like a daily lesson plan instead of current text books. Make it easy to connect to power school grade book so as students finish assignment they would post to the students' grade.”

Other suggested improvements called for more and better professional development or training of teachers to use Algebra Nation (9 respondents or 9 % of those commenting), revising the topic sequence to match a particular school or district (7 respondents or 7% of those commenting), and improved access to technology required for using Algebra Nation (5 respondents or 5% of those commenting).

23 respondents (22% of those commenting) addressed specific improvements such as perforated workbook pages, expansion to 8th grade mathematics, and editing.

Questions 24 to 30 addressed demographic information about the respondents and results were reported earlier in the **Methods and Instruments** section of this report.

The final survey item, **Question 31**, was not a question but provided space for comments or other information that would be valuable to those evaluating the effectiveness of Algebra Nation in South Carolina schools. Fifty-seven (57) respondents provided comments and 41 (72% of those commenting) cited positive elements and support for using Algebra Nation. Sample comments included:

- “We need to do everything we can to give our students a good foundation for their high school math courses. Algebra 1 is the foundation for all future math classes. The more formats that we can use to reach our students the better. I am very impressed with the rigor of material and how aligned it is to our standards.”
- “I believe from my colleagues who used it that AN is a wonderful program that provides challenging problems and a variety of ways to use the videos, expert helpers, Study Guides in order to help any type of student (ones that are ready for a challenge to those who need remediation). Please keep it for 2-5 more years so that teachers can get familiar with the program!”
- “This program is a HUGE benefit to my students. If they do not understand something in class they go on to Algebra Nation to find the video that goes along with it. Also it helps me to make sure that the rigor is there in all assessments because I go through the Test It questions myself to make sure that I understand how to do everything and am covering all that my students need to know. I use the Test its in class as a quiz after we have completed an entire section.”
- “I don't think Algebra Nation is a gimmick. Used appropriately, it has been good for the students who have taken advantage of it. I think it would be worth the money to provide this program another year. I don't think you can determine its effectiveness after 1 or 2 years. It takes 3 years to fully implement new technology in the classroom. I am just understanding much of what the program can do and already have ideas for how to improve my use of the program for next year. Our special education department has found it helpful with our students and have commented that they wished there was something for geometry and algebra 2 as well.”
- “This is the first curriculum provided to our South Carolina teachers and students that completely provided lessons and problems that correlated to all of the South Carolina Algebra 1 standards. Thank you for this resource.”
- “I also thought the incentives are great that the kids can win. The ipads, donut parties, and pizza parties all created a "buzz" among my students about math. Anything that creates a buzz about math is awesome. I loved having this resource for my students and I really hope SC will keep using it. Algebra I standards encompass so much now that it is wonderful to have extra places for students to go and receive help. In addition, it has been nice for me as a teacher to go and look on there for ideas about a type of problem to go with a certain concept. I'm so glad my students had access to Algebra Nation this year!”

Two comments addressed district level weaknesses in the area of technology access. For example, one respondent was impressed by the resources but was unable to make full use because of technology problems:

- “I admire the pacing and real-world connections. Unfortunately, I could not make use of it because of the problem with getting access at the right time. I truly love to use if those problems are fixed prior to the first day of school.”

Classroom Observations

Data gathered from observations of teachers using Algebra Nation materials with students in their schools' classroom are presented in this section. A copy of the observation instrument used is provided in **Appendix B**, and detailed observation reports along with the completed observation instrument is provided in **Appendix C**. Discussion and conclusions drawn from this data with respect to the final three research questions of this evaluation study are provided in the section that follows.

Teachers who were observed using Algebra Nation materials addressed important mathematical practices included in the South Carolina College and Career Ready Standards for Mathematics and measured by the *Mathematics Classroom Observation Protocol for Practices (MCOP²)* instrument. These mathematical practices are critically important to students' growth and success in mathematics because the practices empower students to use mathematics as part of their lives and develop the habits of mind to think mathematically. However, mathematical practices are not easily or typically assessed as part of End of Course testing.

The eight teachers were observed using *MCOP²* and averaged 2.21 on a scale where 0 indicated that addressing the practice was not observed and 3 indicated full or exemplary instruction addressing of the practice. It is normal for some practices to not be addressed or used as part of a particular lesson, and an average score of above 2 indicates that practices are given attention by the observed teacher. The range of average scores for the eight teachers was between 1.50 and 2.94.

A summary of the scores with teacher identification removed for each item on the *MCOP²* form is provided in **Table 14** along with summary totals for Student Engagement (SE) and Teacher Facilitation (TF) as well as averages for each teacher, each item, and the group. Teachers observed using Algebra Nation scored 2.22 on items addressing student engagement with 4 of the 8 teachers scoring above 2.6. The types of engagements observed involved mathematical problem solving, using different representations of mathematics, having students use different strategies, and a climate in which students were respectful of each other's ideas. Teachers also facilitated the development of mathematical practices scoring 1.92 on average with 4 of 8 scoring above 2.3. Teachers encouraged students to use different strategies, addressed conceptual understanding, and fostered an environment in which students were respectful of their peers' thinking.

Mathematical modeling was a notable exception to the otherwise positive instruction on practices. None of the observed teachers made modeling an integral part of the observed lesson and only two were observed addressing modeling. Encouraging students to use multiple paths to solutions or using problems that had multiple solutions received an average score of 1.88 with only three teachers scoring a 3 on this item.

Table 14: *MCOP²* to Results for Observed Teachers

Source: http://jgleason.people.ua.edu/uploads/3/8/3/4/38349129/mcop%5E2_protocol_descriptors_2-16-2018_update_final.pdf

	TEACHER:	One	Two	Three	Four	Five	Six	Seven	Eight	ITEM Averages
ITEM	Item Description									
SE 1	Problem Solving	3	2	0	1	3	3	3	3	2.25
SE 2	Representation	3		2	2	3	3	1	3	2.43
SE 3	Activities	3	3	3	3	3	3	3	3	3.00
SE 4	Students' Math Strategy	3	2	3	1	3	3	0	3	2.25
TF 4	Teachers' Math Strategy	3		3	1	3	3	0	3	2.29
SE 5	Perseverance	2		0	2	3	2	2	3	2.00
TF 6	Concept Understanding	3		3	3	3	3	1	3	2.71
TF 7	Mathematical Modeling	0		1	0	0	0	0	2	0.43
TF 8	Mathematical Structure	3		3	1	3	3	0	3	2.29
TF 9	Multiple Solution Paths	1	1	3	0	2	3	2	3	1.88
TF 10	Mathematical Precision	3		3	2	3	1	2	3	2.43
TF 11	Students' Thinking	2	1	2	2	3	2	2	3	2.13
SE 12	Students' Talk	3		3	1	3	3	1	3	2.43
SE 13	Student Climate of Respect	3	3	3	1	3	3	1	3	2.50
TF 13	Teachers' Foster Respect	3		3	2	3	3	1	3	2.57
SE 14	Wait Time	2		3	3	2	3	0	3	2.29
SE 15	Students' Communicate	2	2	3	0	3	3	0	3	2.00
TF 16	Teachers' Uses Questions	3	2	2	2	3	2	0	3	2.13
SE Total (9)		24	12	20	14	26	26	11	27	
TF Total (9)		21	4	23	13	23	20	8	26	
TOTAL		45	16	43	27	49	46	19	53	
Average (0-3)		2.50	2.00	2.39	1.50	2.72	2.56	1.06	2.94	2.21

Overall there was clear evidence that teachers using Algebra Nation for the observed lessons were addressing most of the mathematical practices as part of the observations. It is neither practical nor expected that each or all practices be addressed within particular lessons, so the evidence for each of the single observation was positive with respect to practices. All students in classes of the eight observed teachers (average score of 3.0) spent two-thirds or more of the observed lesson engaged in meaningful mathematical activities appropriate for Algebra 1. Also, 6 of the 8 teachers (average score of 2.71) facilitated conceptual understanding of fundamental algebra concepts helping students understand the “why” behind the procedures they were learning. Both of these practices were directly impacted by the use of the Algebra Nation videos that include engaging activities that foster conceptual understanding. However, mathematical modeling was not observed being used in 6 of the 8 lesson (average score of 0.43). The lack of attention to mathematical modeling, while not unique to Algebra Nation, indicates an area for growth in the teaching of algebra.

Observation Reports documented the teaching and learning observed during the lessons that used Algebra Nation resources.

Observed Teacher One used a *Guess My Rule* activity to engage students and promote understanding of functions. She commented to the observer on how Algebra Nation videos helped her address mathematics content when substitute teachers are employed during her time away because of illness or professional development.

Observed Teacher Two used of learning stations to differentiate students’ needs, particularly a small group of Spanish speaking students. **Observed Teacher Three** used videos to supplement his own instruction as part of classroom learning pausing the video to explain. This technique allowed him to notice students’ confusion or problems as the video instructor explained and he observed students working.

Observed Teacher Four used Algebra Nation to facilitate small-group instruction that differentiated students’ needs including the use of the Test Yourself! Practice Tool with solution videos. Internet access at home and his school’s technology infrastructure prevented higher levels of implementation.

Similarly **Observed Teacher Five** employed Algebra Nation to facilitate small group learning in a manner that differentiated students’ needs and varied the instructional approach. The Algebra Nation approach to teaching binomial multiplication challenged the teacher to employ a method that fostered her students’ conceptual understanding of a procedure instead of memorization of a method with a “trick.” The teacher commented on how the videos helped her develop new and better teaching methods.

Algebra Nation instruction helped **Observed Teacher Six**’s emphasis of conceptual knowledge in addition to developing procedural fluency. His use of video instruction provided an alternative and high quality instructional approach that supplemented his own teaching.

Observed Teacher Seven shared with the observer the instructional challenge she noticed of her students watching videos but writing responses into their workbooks without thinking about what they were writing. She developed a method of having students stop the video at a particular timecoded points in the video to allow her students to think and write a response after reflection. The teacher used a variety of student groupings because the videos allowed small groups to receive instruction and

progress while she worked with individuals students or a group. This experienced teacher in her 29th year indicated that Algebra Nation challenged her to raise the rigor of the algebra content and to provide different methods that improved her instruction.

Observed Teacher Eight used Algebra Nation videos in a manner that allowed her to attend to students' learning while the primary instruction was provided by the video instructor. This allowed the teacher to detect misconceptions among her students. The district mathematics supervisor indicated that the Algebra Nation resources helped this teacher and other high school teachers at the district address Algebra 1 standards appropriately and with rigor as well as developing new and improved teaching skills. The supervisor indicated that the sequence of instruction on polynomials influenced a change to the district's instructional pacing guide.

Observed Teacher Nine indicated to the observer that scheduling the school computer lab was a challenge at her school where students did not have laptops or tablets. This limited the use of Algebra Nation resources for her classes. The limitation of access, in the teacher's opinion, would also limit the impact on end-of-course test scores. Another mathematics teacher at the same school indicated that Algebra Nation would allow her to plan instruction for her upcoming maternity leave that would allow a substitute without high school mathematics teaching expertise to manage classes and maintain student learning.

Observed Teacher Ten assigned videos for viewing outside of class, but also used videos in class, co-teaching with the video expert. The teacher valued being able to use different teaching styles and mathematical perspectives: her own and those of the Algebra Nation video instructors. Her use of Algebra Nation influenced her to emphasize attention to students' conceptual understanding and provided more real world examples tied to algebra content. The Test Yourself! Practice Tool, the Algebra Wall, and the Boot Camp all motivated the teacher's students to perform.

Discussion, Conclusions, and Recommendations

This final section of the evaluation report includes a discussion and conclusions about student achievement and teaching based on the data presented in the earlier Results sections. The section ends with recommendations about Algebra Nation use in South Carolina.

Discussion and Conclusions about the Impact on Student Achievement

The results derived from the EOCEP Algebra 1 examination provide evidence in response to the research questions posed about student achievement in Algebra 1:

1. **Does access to or use of Algebra Nation materials positively impact the performance of South Carolina students in Algebra 1 and Intermediate Algebra courses on the End of Course Education Program (EOCEP) Algebra 1 examination?** Specifically, do students with access to Algebra Nation materials, on average, score higher than those without access or higher than comparable students from the prior year? Do students whose teachers use Algebra Nation materials with fidelity score higher than comparable students from the prior year?
2. Do EOCEP Algebra 1 examination scores suggest a differential impact of Algebra Nation materials on South Carolina student subgroups (e.g. White-Black-Latino, ELL-NonELL, middle-high, Algebra 1-Intermediate Algebra, male-female)?
3. Are there component parts of Algebra Nation (e.g., videos, test practice tool, Algebra Wall) that have a higher association with student performance on the EOCEP Algebra 1 examination than the other components?

Students in school districts that had access to Algebra Nation materials did not score higher on the EOCEP Algebra 1 examination in 2017-2018 than students in the same district the prior year or in comparison to districts that did not have access to Algebra Nation materials. However, students taught by teachers in 23 of 45 schools who used Algebra Nation materials consistently and extensively demonstrated gains scoring higher means than the prior year and the mean score for all schools equaling that of the prior year when the state average fell one point. Also, for schools where teachers used Algebra Nation with fidelity, increased mean scores were found in the results for students in an Algebra 1 course and for students in middle schools as well as for Black/African-American students whose mean scores were higher than the state average for the same year. However, scores for students in the Intermediate Algebra course and for student in high school as well as for Hispanic students were below the state average for respective groups.

Access to Algebra Nation materials did not ensure active or effective usage by students and teachers.

While data indicated that over 2,000 teachers logged into Algebra Nation, access was provided to all teachers in many subjects at middle and high school teachers with approximately 90%, most not algebra teachers, never logging into Algebra Nation and fewer than 5% logged in 5 or more times during the school year. Similarly, 64% of the students in districts with access to Algebra Nation never logged in to use the materials and only 13% of students logged in 5 or more times. For these reasons, drawing conclusions based on access to Algebra Nation materials is not an appropriate evaluation of impact as there is no assurance that Algebra Nation materials were used at all or in a manner that might affect test performance.

A group of 97 algebra teachers in middle and high school were identified to have made active and meaningful use of Algebra Nation materials over the 2017-2018 school year. **For this group, there was some evidence from students' test scores of a positive impact from using Algebra Nation materials.** A slight majority of schools (23 of 45) experienced higher mean scores from the prior year when the state mean dropped by one point. The increase was significantly higher for 4 of the schools. **The increase was most pronounced in middle schools** where 10 of 16 schools experienced gains and 3 were significantly higher. Mean scores at the high school level dropped 1.0 points consistent with the overall state performance, but mean scores at the middle school level increased by 1.6 points. Mean scores for students in Algebra 1 courses increased by 0.2 points largely on the basis of students who took Algebra 1 in middle school whereas mean scores for students in the Intermediate Algebra course dropped 2.4 points.

A group of 60 teachers at 34 schools from the group who used Algebra Nation with fidelity taught Algebra 1 or Intermediate Algebra classes at the same school both in 2016-2017 and in 2017-2018. **For these teachers, the overall difference in mean scores from the prior year was 0.3 lower when the state mean was one point lower.** Mean scores for high schools dropped significantly from the prior year, but means for middle schools increased significantly. Mean scores for Intermediate Algebra classes were significantly lower, but means for Algebra 1 classes were essentially the same, again when the state mean dropped one point. Seventeen (17) of the 34 schools experienced gains in mean scores from the prior year with 5 having significantly higher increases. Eighteen (18) of the 34 schools experienced lower mean scores with 6 being significantly lower.

There was no evidence of differential impact on test scores by gender or English Language proficiency. Mean scores for male and female student were consistent with the overall state performance. Students identified as having limited English Language proficiency also performed comparable to the statewide mean. In terms of culture or race, **Black or African-American students whose teachers made active use of Algebra Nation exceeded the statewide mean for comparable students though scores for four other groups of students were lower than the respective statewide means.** Similarly for the very small group (22) of American Indian and Native American students, mean scores were higher than the statewide mean. Multi-race students matched the statewide mean for other multi-race students. Asian, Hispanic, Native Hawaiian/Pacific Island, and White students scored lower than the statewide mean for comparable students.

The analysis of how using different Algebra Nation components by teachers and by students related to EOCEP Algebra 1 test score performance indicated some correlations that may suggest that usage positively impacted higher scores. **Teachers logging into Algebra Nation as well as accessing the teacher area had the highest correlations with test scores (0.30 and 0.36, respectively) indicative of a relation worthy of further study.** Data on teacher usage of other Algebra Nation components also correlated positively with test scores but the correlations were very low. Overall, one may conclude that logging in more did correlate with higher test scores for the teachers who implemented Algebra Nation with fidelity.

For students of the teachers who implemented Algebra Nation with fidelity, viewing instructional videos outside of school hours and completing the Test Yourself! Practice Tool component had high correlations (0.48 and 0.49, respectively) with test scores. The high correlations might be attributed to student motivation and not necessarily from the instruction received from the materials. Students posting on the Algebra Wall during school and outside of school or receiving Karma Points also correlated positively with test scores, but not as strongly (0.14, 0.26 and 0.28, respectively). Other

student usage variables correlated at near zero levels indicating no relationship with test performance. There was a negative correlation between students starting the On Ramp remediation component but not finishing (-0.17) but this too might be a factor tied to student motivation and not the On Ramp materials. It seems possible that students who do not persist to finish On Ramp are also likely to be among the weaker test performers. **A conclusion to be drawn from the student usage correlations is that students participating in the Test Yourself! Practice Tool component and who viewed videos outside of school correlated strongly with higher test scores.**

From this data, one may conclude that providing access to Algebra Nation materials did not positively impact EOCEP Algebra 1 test scores, but students whose teachers made active and meaningful use of the materials experienced slight gains with the most gains at the middle school level and among Black/African-American learners.

Some **limitations** inherent to the evaluation should be noted. **The results of this evaluation were limited to comparisons of mean scores of students at the level of their teachers, school, or the district.** Algebra Nation usage is, by design, flexible and varies significantly among students, teachers, schools, and districts. An ideal evaluation would have examined individual student test performance in relation to the individual student's use of Algebra Nation components. Such an evaluation was not possible for this report because South Carolina EOCEP Algebra 1 examination publicly released data cannot include individual student identifiers. South Carolina individual districts may release data with student identifiers, but a pilot study conducted at the end of the Fall 2017 semester indicated that responses from districts were limited and even those responding included student identifiers that were not always consistent with Algebra Nation student identifiers.

A truism among evaluation professionals is that in the first year of any implementation of innovative curriculum, the only ones learning are the implementers. **Many issues arise during the first year of implementing an innovation that must be addressed leading to a less-than-ideal implementation.** In the surveys, some teachers commented on the access problems and how they felt better prepared to begin the next school year using Algebra Nation.

Overall, the results based on analysis of test score performance from the first year of implementing Algebra Nation materials were not negative, and there were positive impacts for Algebra 1 courses, at the middle school level, and for Black/African-American students. This suggests continued implementation and evaluation of the impact of Algebra Nation on EOCEP Algebra 1 test scores particularly during and after the 2018-2019 school year.

Discussion and Conclusions about the Impact on Teaching

The results derived from the South Carolina Algebra Nation Teacher Survey and the Classroom Observations provide evidence in response to the final three research questions posed about impact on the teaching of Algebra 1:

1. Do teacher perceive that particular component parts of Algebra Nation (e.g., videos, online help, Algebra Wall) impact student performance on the Algebra 1 EOCEP greater than others?
2. What types of student or teacher engagements with the different components of Algebra Nation are required in order to impact student performance in Algebra 1?

3. Do South Carolina teachers of Algebra 1 whose students use Algebra Nation materials consider the materials useful to their work?

Teacher survey.

Data from the teacher survey indicated that **many (60%) of teachers responding made use of Algebra Nation materials at least once every two weeks, but different issues or concerns prevented more extensive use. Technology access or reliability at the school or district level was a primary issue, and alignment of the Algebra Nation content sequence to district pacing or curriculum guides were cited as concerns**, but the number of respondents citing concerns was much smaller (between 11% and 19%) than those citing reasons for using Algebra Nation. There was no evidence from the survey that technology access concerns emanated from Algebra Nation, and the problems cited involved insufficient access to computers or devices for students as well as some problems with district level Internet reliability.

While more than half of teachers responding to the survey used Algebra Nation videos as part of whole-class instruction, follow-up questions did not indicate that teachers were making creative or varying uses of the video as part of the instructional approaches. The use of the videos through a learning center, for lesson introduction, or as a quiz follow-up was done by between 30% and 34% of respondents. However, **there was evidence of wide use (more than 62%) as a lesson component or entire lesson or as an alternative or second teaching method.**

The **Algebra Nation Workbook and instructional videos were clearly used most extensively** by survey responders **as was the Test Yourself! Practice Tool**, but the On Ramp Study Guide and Algebra Wall as not used as extensively. **The On Ramp guide was cited by observed teachers as valuable but not as well known.**

Comments from responders to the survey documented the strength of Algebra Nation for providing teachers with alternative teaching methods or support for instruction through the videos and workbook as well as instruction that was rigorous and with high expectations. It was clear from the survey that those responding found the resources to be consistent with South Carolina algebra standards and that the resources benefited the students and teachers. **A remarkable 96% of respondents indicated that the Algebra Nation materials were appropriately aligned with South Carolina Algebra 1 standards and, furthermore, the materials were considered rigorous and appropriately challenging.**

Limitations were cited by less than 20% of respondents and included concerns for determining how to use the many resources as well as technology access, both also cited by observed teachers. Survey responders (11%) also commented on concerns about how the Algebra Nation resources were sequenced when the sequence may not have matched a district's guide. There will always be variation to the sequencing of content, and there was no evidence of errors in how Algebra Nation materials were sequenced. Many teachers indicated an ability to apply the flexibility inherent to the Algebra Nation resources to meet the needs of their students or the expectations of their schools or districts. Supporting teachers in the process of implementing the resources in a flexible manner might address this concern.

Close to 80% of respondents indicated that Algebra Nation had a positive impact on their students' learning in algebra. Two-thirds of respondents indicated that they believed Algebra Nation use would

positively impact their students' EOCEP Algebra 1 test scores, and almost all of those indicated that they had evidence to support this belief. For those who indicated a lack of impact, the lateness of their implementing the materials or the fact that the survey was administered prior to receiving EOCEP Algebra 1 results were cited. However, a few teachers, less than 3% of respondents, indicated that they prefer other materials.

Professional development and support by Algebra Nation were rated highly by survey responders with more than 60% rating the support, both technical and professional, as Very High or High in quality. Low or Very Low ratings were given by no more than 8% of respondents except for some 10% that cited log-in or student access problems.

Ultimately, 90% of respondents felt that providing South Carolina teachers with access to Algebra Nation should be a high or moderate priority with 52% making it a high priority and 38% a moderate priority. Comments supporting this response cited the high quality of the Algebra Nation materials and support as factors for continued use.

Classroom observations.

From the classroom observations, evidence was found that **indicated teachers benefited from Algebra Nation resources and their teaching was impacted positively. The resources provided teachers with the ability to implement research-based methods for algebra instruction.** Examples such as the use of the area model for teaching binomial multiplication were observed in several classrooms and teachers commented that this method had allowed them to move away from a procedure that was more rote and less tied to conceptual understanding. Algebra Nation instruction also included many applications of algebra and real-world examples that teachers used and indicated as positive.

Evidence was found using the *MCOP*² observation instrument that **teachers addressed the mathematical practices included in the South Carolina College and Career Ready Standards for Mathematics.** Most notable was the emphasis on addressing **problem solving** and the **use of different mathematical representations.** Both the Algebra Nation videos and the workbook included instructional approaches that impacted the observed teachers and their students.

An additional observed benefit derived from the use of Algebra Nation materials was **teachers' ability to differentiate instruction so as to address students' needs and abilities.** This included addressing cognitive needs by assigning video tutors who address instruction briskly for those students grasping ideas easily or assigning tutors who are more deliberate and detailed for those struggling to learn concepts. Also, culturally, the **Spanish language tutor allowed access to fluent instruction for students whose primary language is Spanish.** Differentiation also involved teachers employing **different student grouping strategies** such as small group or individualized work where the instruction is through video as well as co-teaching with the video instruction. Observed teachers also cited that the Algebra Nation videos allowed them to **plan and provide meaningful mathematics instruction during periods of their own absence from the classroom.** Substitute teachers capable of teaching high school algebra are rare, and observed teachers commented that access to the extensive video collection allowed them to plan lessons that non-mathematics experts could implement. This was done for absences due to illness, professional development, or maternity.

Teachers were observed using the projected video instruction as part of regular classroom instruction. Several benefits resulted from this instruction approach. Since the video instructor focused on the algebra content the live classroom teacher was able to focus on her or his students' learning of the

content. The classroom teacher could attend to both how the content was being presented through the video and to how students were learning the content as presented. Additionally, the video instruction served to develop teachers' knowledge not only of algebra content, but also of different approaches for teaching algebra. This was noted by a district mathematics supervisor who indicated that the Algebra Nation materials had served to develop the district's algebra teachers' knowledge of the South Carolina Algebra standards.

Lastly, observations indicated **that teachers made extensive and effective use of the practice materials provided by Algebra Nation.** The Test Yourself! Practice Tool was observed in use with students and every observed class made use of the Workbook. **Teachers commented on the value of the online resources materials with many lauding the use of the On Ramp diagnostic tool.** Several observed teachers commented that they had discovered the On Ramp tool later in the school year and planned on making more extensive and earlier use of this tool to identify individual student weaknesses.

Observations, however, noted a **lack of emphasis on the practice of mathematical modeling.** While teachers addressed problem solving typically using real world contexts and also emphasized applications of mathematics to other fields, both directly resulting from Algebra Nation materials, no teacher was observed addressing the mathematical model cycle in part or as a whole. The cycle as described in the 2016 *Guidelines for Assessment and Instruction in Mathematical Modeling Education* (GAIMME, <https://www.siam.org/Publications/Reports/Detail/Guidelines-for-Assessment-and-Instruction-in-Mathematical-Modeling-Education>) serves to develop students' ability to make algebra and mathematics meet their needs in solving problems and making decisions. Through the 6-step cycle (Figure 3.1, p. 46, GAIMME, 2016), students experience how algebra allows for predications and provides insights into the world in which students live and will work. Admittedly, few high school teachers are currently implementing the modeling practice, but **Algebra Nation through its videos and resource materials could positively impact this important and neglected mathematical practice.**



Recommendations

- **Continue to provide Algebra Nation to South Carolina school districts to improve teacher instruction and to impact test scores and improve instruction based on test score results** (positive results with Algebra 1 classes, for middle schools and for Black/African-American students as well as the consistent performance of students whose teacher implemented Algebra Nation with fidelity), **teacher survey responses** (citing the value to their instruction and increased rigor), **and classroom observations** (indicating attention to mathematical practices).
- **Evaluate the impact of Algebra Nation during the 2018-2019 school year** based on conclusions from the data analysis indicating only partial implementation of Algebra Nation during the first year.
- **Encourage use of the Test Yourself! Practice Tool** component and the viewing of videos outside of school based on the correlation of usage of these resources with higher test scores.
- **Improve school and district technology access** by expanding the number of tablets or laptops available to all algebra students and insuring reliable Internet access based on teacher responses to the survey and comments during observations.

- **Collaborate with the South Carolina Leaders in Mathematics Education to provide flexibility and consistency with Algebra Nation curriculum sequencing** that may vary with district algebra curriculum based on teacher responses to the survey.
- **Provide on-going support to help teachers implement the videos and other instructional resources** into their classroom teaching particularly the less used On Ramp Study Guide based on survey responses.
- **Expand** the already ample but still requested **support materials** to help students' practice for end of course testing based on comments to the survey.
- **Emphasize the differentiation of instruction and the use of different teaching methods as part of professional development**, and employ long term teacher development during the school year to allow and encourage the sharing of ideas for implementing these methods with all algebra teachers and encourage them to apply the methods during the school year based on survey comments.
- **Include resources** as part of video instruction as well as within the online support materials **that address mathematical modeling** based on classroom observations.

Appendix A

South Carolina Teacher Algebra Nation Survey



Algebra Nation Survey

South Carolina Teacher Survey

This survey seeks data on how teachers use Algebra Nation. The results will inform decision makers on whether to continue to provide Algebra Nation materials to South Carolina teachers and students as well as to help Algebra Nation developers improve their materials.

Participation in this survey is voluntary. All data collected through this survey is confidential and will only be released as summaries with no identifying information. Questions you prefer not to answer may be skipped.

Consider "use of Algebra Nation" to mean involving your students either in class or as part of out-of-class homework with the instructional videos, the Wall, the Test Yourself tool, the On Ramp study guide, or the supplied workbook over the 2017-2018 school year.

Contact Dr. Ed Dickey (ed.dickey@sc.edu) if you have any questions about the survey.

1. Did you use Algebra Nation to teach your students at least once every two weeks?

☐ Yes

☐ No

2. If you answered NO, why did you not or what prevented you from using Algebra Nation with your students at least once every two weeks?

3. Did your students have access to the printed Algebra Nation Workbook?

☐ Yes

☐ No

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4. Which medium did you or your students primarily use to access the Algebra Nation electronic materials (videos, Test Yourself, On-Ramp, the Wall) whether in your classroom or elsewhere. Mark all that apply.

- ☐ Computers in computer lab
- ☐ Computer or computers in classroom
- ☐ Students' own device such as laptop, tablet, or cell phone
- ☐ School-owned tablet

Did you notice any limitations regarding access?

5. How frequently do you show Algebra Nation instructional videos to your entire class (perhaps through projection)?

- ☐ I did not show the Algebra Nation instructional videos to my entire class.
- ☐ Three or four times in every five classes.
- ☐ Less than one in every five classes.
- ☐ In every class.
- ☐ One or more times in every five classes.

6. Indicate the extent to which you used the strategies in the left-column below as part of showing the Algebra Nation instructional videos to your entire class:

	Not Used	Less than once in every five classes	One or more times in every five classes	Three or four times in every five classes	In every class
Used all or portion of an instructional video as a bell ringer/warmup activity.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presented an instructional video prior to my own lesson instruction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presented all or part of an instructional video as a component of a lesson I taught.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presented an instructional video followed by a quiz.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presented an instructional video after teaching a lesson to reinforce concepts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used instructional videos for test review.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presented instructional video as alternative or 2nd teaching method.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used video as lead in to workbook practice problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used video as follow-up to workbook practice problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Have you established a learning center within your classroom where one or more students were required to work on Algebra Nation materials?

- ☐ Yes
- ☐ No

8. How frequently do you have a student or student groups (2-6 students) work individually on the Algebra Nation website or tablet app during class time?

- ☐ I do not have students work on the Algebra Nation website or app during class time.
 ☐ Three or four times in every five classes.
 ☐ In every class.
 ☐ Less than one in every five classes.
 ☐ One or more times in every five classes.

9. Indicate how frequently you have a student or student groups worked individually on the following Algebra Nation materials during class time.

	Not Used	Less than once in every five classes	One or more times in every five classes	Three or four times in every five classes	In every class
Watched Instructional videos	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used the Test Yourself practice tool	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used the On Ramp Study Guide	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Posted to the Algebra Wall	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used the provided Workbook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Indicate the extent to which you used the strategies in the left-column below as part of instruction with Algebra Nation printed Workbook practice problems:

	Not Used	Less than once in every five classes	One or more times in every five classes	Three or four times in every five classes	In every class
Used as a bell ringer/warmup activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as assignments for small group work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as a diagnostic tool during class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as opener for a lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as assessment after a lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as a test for final grade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. Indicate the extent to which you used the strategies in the left-column below as part of instruction with Algebra Nation Test Yourself Practice Tool:

	Not Used	Less than once in every five classes	One or more times in every five classes	Three or four times in every five classes	In every class
Used as a bell ringer/warmup activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as assignments for small group work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as a diagnostic tool during class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as opener for a lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as assessment after a lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as a test for final grade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Indicate the extent to which you used the strategies in the left-column below as part of instruction with Algebra Nation On Ramp Study Guide:

	Not Used	Less than once in every five classes	One or more times in every five classes	Three or four times in every five classes	In every class
Used as a bell ringer/warmup activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as assignments for small group work	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as a review during class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as a review at school but outside of class	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as assigned work for student at home	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as opener for a lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as assessment after a lesson	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Used as a test for final grade	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13. Indicate whether or not you used the strategies in the left-column below as part of instruction with Algebra Nation **Algebra Wall**.

	YES	NO
Used Karma points or wall posts for extra credit	<input type="radio"/>	<input type="radio"/>
Used Karma points or wall posts for participation grades	<input type="radio"/>	<input type="radio"/>
Created Karma points competition	<input type="radio"/>	<input type="radio"/>
Used Karma points or wall posts for homework grades	<input type="radio"/>	<input type="radio"/>
Provided tutoring time in the evenings on the Algebra Wall	<input type="radio"/>	<input type="radio"/>

14. Indicate the extent to which you asked your students to watch specific Algebra Nation instructional videos at home or outside your classroom.

- ☐ I did not ask students to watch specific Algebra Nation instructional videos at home or outside of class.
 ☐ Three or four times in every five classes.
- ☐ Less than one in every five classes.
 ☐ In every class.
- ☐ One or more times in every five classes.

15. Indicate the extent to which you assigned your students Algebra Nation printed **Workbook** practice problems as homework.

- ☐ I did not assign students Algebra Nation printed Workbook practice problems as homework.
 ☐ Three or four times in every five classes.
- ☐ Less than one in every five classes.
 ☐ In every class.
- ☐ One or more times in every five classes.

16. Indicate the extent to which you assigned your students Algebra Nation printed **Test Yourself** tool as homework.

- ☐ I did not assign students Algebra Nation Test Yourself tool as homework.
 ☐ Three or four times in every five classes.
- ☐ Less than one in every five classes.
 ☐ In every class.
- ☐ One or more times in every five classes.

17. Indicate the extent to which you assigned your students Algebra Nation On Ramp Study Guide as homework.

- | | |
|---|--|
| <input type="radio"/> I did not assign students Algebra Nation On Ramp Study Guide as homework. | <input type="radio"/> Three or four times in every five classes. |
| <input type="radio"/> Less than one in every five classes. | <input type="radio"/> In every class. |
| <input type="radio"/> One or more times in every five classes. | |

18. Indicate the extent to which used Algebra Nation as a remediation tool with your students who might have struggled or were falling behind. Mark all that apply.

- | | |
|--|--|
| <input type="checkbox"/> I did not use Algebra Nation as a remediation tool. | <input type="checkbox"/> I assigned specific Algebra Nation instructional video to particular students to watch at school. |
| <input type="checkbox"/> I assigned specific Algebra Nation instructional video to particular students as homework. | <input type="checkbox"/> I assigned specific Algebra Nation Workbook practice to particular students to use at school. |
| <input type="checkbox"/> I assigned specific Algebra Nation Workbook practice to particular students as homework. | <input type="checkbox"/> I assigned specific Algebra Nation On Ramp videos to particular students to watch at school. |
| <input type="checkbox"/> I assigned specific Algebra Nation On Ramp videos to particular students as homework. | <input type="checkbox"/> I assigned specific Algebra Nation On Ramp Study Guides to particular students to use at school. |
| <input type="checkbox"/> I assigned specific Algebra Nation On Ramp Study Guides to particular students as homework. | <input type="checkbox"/> I provided before or after school assistance for students using Algebra Nation resources. |

19. What did you find to be the main strength of Algebra Nation?

20. What did you find as the most significant limitation of Algebra Nation?

21. From your experience, what is your perception of how using **Algebra Nation** impacted your students' grades and confidence levels in algebra?

	YES	NO
Appropriately aligned to the South Carolina Algebra 1 standards	<input type="radio"/>	<input type="radio"/>
Algebra Nation materials are rigorous and appropriately challenging	<input type="radio"/>	<input type="radio"/>
Positively impacted my students' EOCEP Algebra 1 test scores	<input type="radio"/>	<input type="radio"/>
Positively impacted my students learning in the algebra course I taught	<input type="radio"/>	<input type="radio"/>
I found evidence that Algebra Nation has a positive impact on test scores, grades, or confidence levels	<input type="radio"/>	<input type="radio"/>

If you found evidence that **Algebra Nation** had a positive impact on test scores, grades, or confidence levels, briefly explain what you found:

22. Rate the following professional support features provided by **Algebra Nation**.

	Very High	High	Medium	Low	Very Low
Support for my use of Algebra Nation resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical support for log-in and access issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical support for curriculum issues	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Support for my students' learning of algebra	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

23. Which of the following represents your opinion on whether **Algebra Nation** materials should continue to be provided to South Carolina students and teachers:

- ☐ Providing Algebra Nation materials is a **high priority** because they are essential to my students and me.
- ☐ Providing Algebra Nation materials is a **moderate priority** because they are useful but not essential.
- ☐ Providing Algebra Nation materials is a **low priority** because they are not useful to my students or me.

24. If you could improve the **Algebra Nation** materials, what would you do?

25. When did you start using **Algebra Nation** with your students?

- ☐ I did not use Algebra Nation materials with my students.
- ☐ Fall 2017
- ☐ Spring 2018
- ☐ Before Fall 2017

26. During 2017-18, in what grades were the students you taught? Mark all that apply.

- ☐ 6th grade
- ☐ 7th grade
- ☐ 8th grade
- ☐ 9th grade
- ☐ 10th grade
- ☐ 11th grade
- ☐ 12th grade

27. During 2017-18, in what course did you use **Algebra Nation** materials?

- ☐ Algebra I
- ☐ Foundations of Algebra
- ☐ Intermediate Algebra
- ☐ Other (please specify)

28. How many years have you taught prior to this year (2017-18)?

- | | |
|----------------------------------|--|
| <input type="radio"/> First year | <input type="radio"/> 6-10 Years |
| <input type="radio"/> 1-2 Years | <input type="radio"/> 11-20 Years |
| <input type="radio"/> 3-5 Years | <input type="radio"/> More than 20 Years |

29. Are you a National Board Certified Teacher?

- ☐ YES
- ☐ NO

30. Did you enter teaching through an alternative certification program (PACE, ABCTE, Teach for America, etc)?

- ☐ YES
- ☐ NO

31. Thank you for taking the time to complete this survey and help us assess the impact of Algebra Nation for South Carolina students.

Please use the space below to share any other information you feel will be valuable to those evaluating the effectiveness of Algebra Nation in our state's schools.

Appendix B
Mathematics Classroom Observation Protocol of Practices (MCOP²)
Teacher Observation Instrument

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description	Comments
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.	
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.	
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.	
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.	

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description	Comments
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.	
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.	
1	The students manipulated or generated one representation of a concept.	
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.	

3) Students were engaged in mathematical activities.

SE	Description	Comments
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)	
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.	
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.	
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.	

4) Students critically assessed mathematical strategies.

SE	TF	Description	Comments
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.	
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description	Comments
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.	
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.	

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description	Comments
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.	
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.	

7) The lesson promoted modeling with mathematics.

TF	Description	Comments
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).	
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); or modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.	
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.	
0	The lesson does not include any modeling with mathematics.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description	Comments
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.	
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.	
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.	
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.	

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description	Comments
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.	
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; or more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; or a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.	

10) The lesson promoted precision of mathematical language.

TF	Description	Comments
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.	
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.	
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.	
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.	

11) The teacher's talk encouraged student thinking.

TF	Description	Comments
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. <i>Analysis</i> : examines/ interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. <i>Synthesis</i> : requires original, creative thinking. <i>Evaluation</i> : makes a judgment of good or bad, right or wrong, according to the standards he/she values.	
2	The teacher's talk focused on mid-levels of mathematical thinking. <i>Interpretation</i> : discovers relationships among facts, generalizations, definitions, values and skills. <i>Application</i> : requires identification and selection and use of appropriate generalizations and skills.	
1	Teacher talk consists of "lower order" knowledge based questions and responses focusing on recall of facts. <i>Memory</i> : recalls or memorizes information. <i>Translation</i> : changes information into a different symbolic form or situation.	
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.	

12) There were a high proportion of students talking related to mathematics.

SE	Description	Comments
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
1	Less than half of the students were talking related to the mathematics of the lesson.	
0	No students talked related to the mathematics of the lesson.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description	Comments
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.	
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.	
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.	
0	0	No students shared ideas.	

14) In general, the teacher provided wait-time.

SE	TF	Description	Comments
3		The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.	
2		The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.	
1		The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.	
0		The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.	

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description	Comments
3		Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.	
2		Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.	
1		The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.	
0		No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.	

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

TF	Description	Comments
3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.	
2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.	
1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task versus conceptual knowledge of the content.	
0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.	

Additional Notes: Preservice or Inservice. Live or Video. #Students, Grade Level, topic/subject, date, other demographics, school, etc.

Appendix C

Teacher Observation Reports and MCOP² Reports

1. Nicole Baxter, Honea Path Middle School, November 3, 2017
 - a. Observation Report
 - b. MCOP² Form
2. Jenell Riley, R.B. Stall High School, November 6, 2017
 - a. Observation Report
3. Scott Carter, Southside Middle School, November 7, 2017
 - a. Observation Report
4. Tom Mauldin, Cheraw High School, November 8, 2017
 - a. Observation Report
 - b. MCOP² Form
5. Wendy Major, Greenwood High School, January 11, 2018
 - a. Observation Report
 - b. MCOP² Form
6. Russell Saunders, Midland Valley High School, February 12, 2018
 - a. Observation Report
 - b. MCOP² Form
7. Kathi Haynie, Belton Middle School, February 13, 2018
 - a. Observation Report
 - b. MCOP² Form
8. Ashley Jacobs, Summerville High School, March 1, 2018
 - a. Observation Report
 - b. MCOP² Form
9. Sharon Gregory and Dana Jenkins, Midland Valley High School, March 14, 2018
 - a. Observation Report
 - b. MCOP² Form
10. Jennifer Porter, E.L. Wright Middle School, March 28, 2018
 - a. Observation Report
 - b. MCOP² Form

Algebra 1 Observation for Algebra Nation

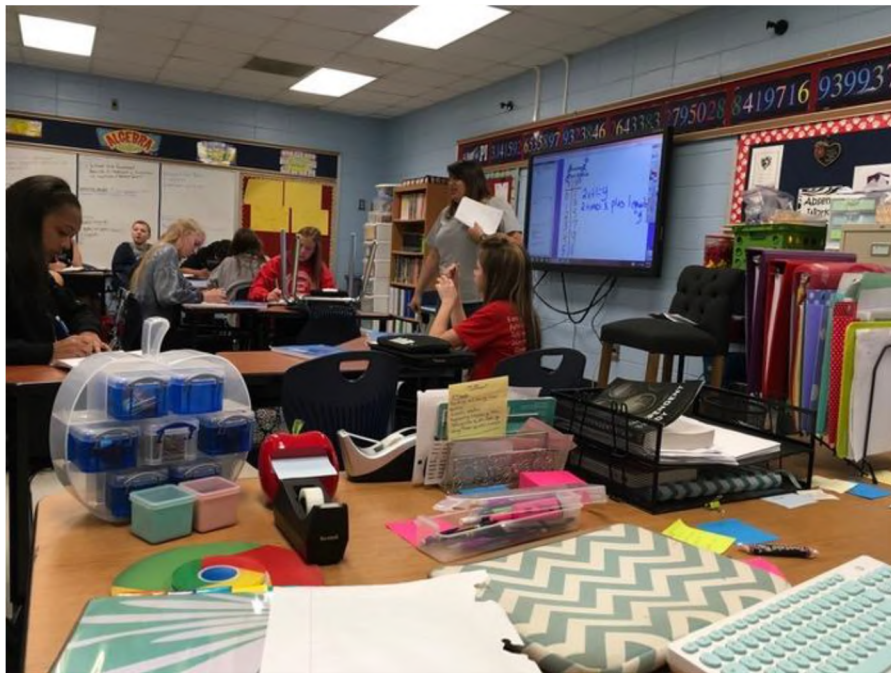
Nicole Baxter
Honea Path Middle School
3 November 2017

9:44 - 10:24 a.m. first block Algebra 1 class

Nicole Baxter is an experienced and confident middle school mathematics teacher. She completed a teacher preparation program at Georgia Southern University and participates in professional development through her district and Clemson University. This is her first year in the district but she has been teaching for about 5 years.

A large number of students are in this 8th grade Algebra 1 class, about 30. A *Guess My Rule* activity was displayed on the large screen video display at the front of the room. Ms. Baxter made announcements about past work, and then began the activity. She asked student to provide input numbers to which she gave an output with the intention of having the students guess the rule for the output. Students were to raise their hand if they knew the rule. She provided terms like domain and range and independent and dependent to describe the x as input and y as output.

Ms. Baxter described the forms or representations that she was writing on the display: table, algebraic, and word each representing the rule that was guessed. She explained how to see patterns and how the 0 input helps. She provided another example this time using the square of the input. Students were all interested and engaged in the challenge to guess the rule.



Ms. Baxter next provided each student with their **Algebra Nation (AN)** workbook. She asked students to go to the **AN** web site using their Chromebook. Each student had a Chromebook in a

case provided by the school. Internet access was slow and required screen refreshing. It was slower than usual. To adjust for the delay Ms. Baxter asked students to create a graph on paper for each of the *Guess My Rule* examples. The delay caused stress on Ms. Baxter as the students were not on task.

Ms. Baxter detected a network problem and instructed students to change the network host but access was not working. A firewall problem with the district internet access was a possible culprit or perhaps problems at AN. A district instructional coach was also observing and tried to help. Ms. Baxter indicated that access has not been a problem, and there was access earlier in the school day.

Students had been using AN in class and at home successfully. She shared with me how she integrates the state standards to the AN lessons. She also indicated that she uses the *On Ramp* feature with her Math 8 students as well as with some in Algebra 1. She finds AN very beneficial because for Algebra 1 she must address both the algebra course standards and the 8th grade math standards. Having the AN for her is like having another teacher to help.

Ms. Baxter focused on the alternative graphing activity to ensure student learning proceeded despite the original plan for using AN not being possible. A student commented he preferred the graphing to AN. Ms. Baxter used called "Strikes" maintain order and students responded with less talk and attention to the graphing task as she called strike 2. She stressed the importance of producing graphs with all 4 quadrants.

Homework from p. 55 of the AN workbook was assigned. Students were to watch the topic 1 video and answer questions.

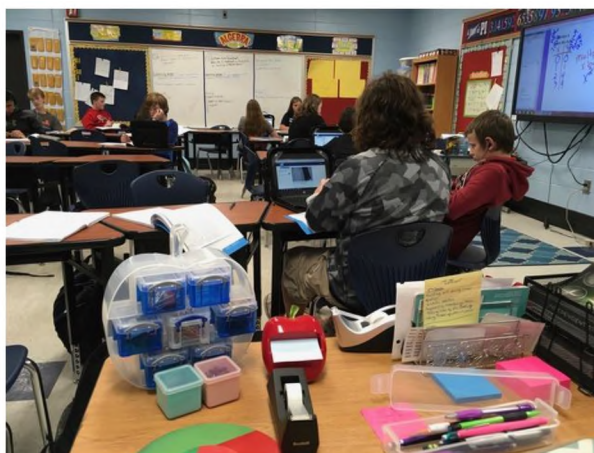
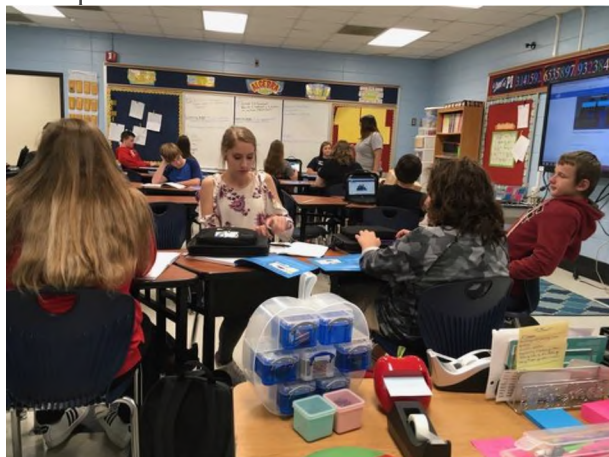
10:50-10:55 a.m. and 11:21-12:11 p.m. second block Algebra 1 class

This too was a large class with approximately 30 students. The Friday bell schedule called for an interruption of the class after about 5 minutes of instruction with students later returning for the rest of the class period.

AN workbooks were distributed to all students. The *Guess My Rule* activity was initiated for this class comparable to the first. Ms. Baxter referred to a **Desmos** assignment that students had done in a prior class and was ongoing. There was a break after 5 minutes for an assembly. Students returned after 30 minutes.

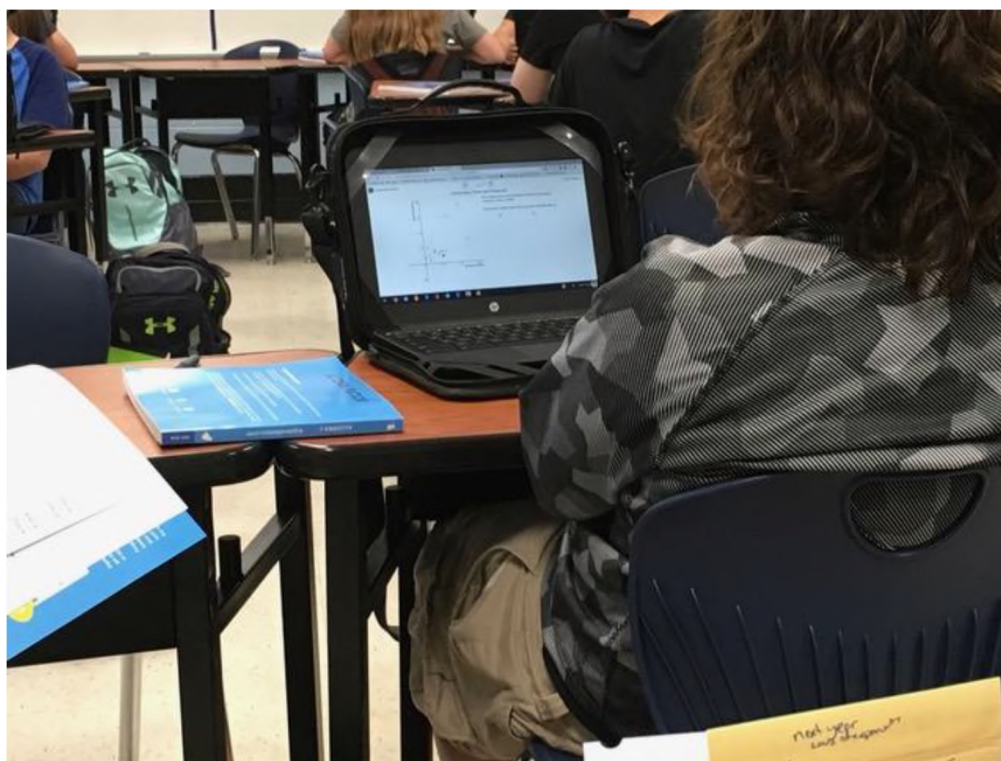
Ms. Baxter finished the second *Guess My Rule* example. She asked one student to try to access AN. She finished handing out the AN workbooks and had the students enter their names on each. She had the rest of the students log in with small groups of 5 doing so to avoid all logging on at once and potentially causing problems. She logged in on the main class display successfully. She asked students to turn to p. 55 of the workbook and directed them to go to the video in section 3, the introduction to functions, to watch the video and to take notes. She asked everyone to view Kiana, the video tutor, because she had previewed that video and the level was appropriate for her planned lesson. She instructed students to view the videos with earbuds. It is

21 minutes long and they were to pause as needed and to take notes. Those without earbuds were put outside in the hall or in another classroom to view.



Students were all on task with the individualized work using AN videos and the workbook. For the 25 minutes allotted for this work.

Ms. Baxter cited to me the benefits of AN when she is absent. She uses *On Ramp* in all her classes. She is noticing significant accomplishments this year over years past and attributes this to both AN use and her own growth in using more cognitively demanding tasks. The tasks have come from a professional development grant project through Clemson University (Dr. Megan Che) and through activities involving **Desmos**. As class ended students were told to save their progress to finish the work at home.



MCOP² Form for Nicole Baxter

Nicole Baxter / Honea Path MS 11/3/2017

7:11 - 10:25
11:15 - 12:15

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.

Comments
Guess my rule - lots of conjecture

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.
1	The students manipulated or generated one representation of a concept.
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.

Comments
table, alg, verbal w graph - emphasized different representations

3) Students were engaged in mathematical activities.

SE	Description
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.

Comments
almost all engaged throughout lesson

4) Students critically assessed mathematical strategies.

SE	TF	Description
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.

Comments
So thought critically about conjectures

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.

Comments
The task did not require a great deal of perseverance

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

IF	Description
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.

Comments
functions & representations are fundamental & critical

7) The lesson promoted modeling with mathematics.

IF	Description
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); or modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.
0	The lesson does not include any modeling with mathematics.

Comments

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.

Comments
- patterns were emphasized

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description
3	A lesson which includes several tasks throughout, or a single task that takes up a large portion of the lesson, with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; or more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; or a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.

Comments
one general solution path - suggested providing output to have student's given input

10) The lesson promoted precision of mathematical language.

TF	Description
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.

Comments
attention noted with precise use of mathematical language

11) The teacher's talk encouraged student thinking.

TF	Description
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. Analysis : examines/interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.
1	Teacher talk consists of "lower order" knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.

Comments

12) There were a high proportion of students talking related to mathematics.

SE	Description
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.
1	Less than half of the students were talking related to the mathematics of the lesson.
0	No students talked related to the mathematics of the lesson.

Comments
all were talking about math concepts

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments

14) In general, the teacher provided wait-time.

SE	TF	Description
3	3	The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2	2	The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1	1	The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0	0	The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments
The lesson pace was fast.

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description
3	3	Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2	2	Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1	1	The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0	0	No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

SE	TF	Description
3	3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2	2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1	1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task verses conceptual knowledge of the content.
0	0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments

Additional Notes: Preservice or Inservice, Live or Video, #Students, Grade Level, topic/subject, date, other demographics, school, etc.

- Inservice
- Live
- 28 students in each of two classes
- 8th grade
- Home Park Middle
- predominately white, some children of color

School Launch, Intermediate Algebra Observation, and Panel Discussions for Algebra Nation

Pep Rally

8:45 – 9:15 a.m.

A pep rally with approximately 500 students to launch Algebra Nation was held in the school's Performing Arts Center. The rally was hosted by three of the Algebra Nation video instructors who provided positive comments about learning algebra. Students were interested and seemed pleased to meet the video teachers in person asking questions about them and cheering. At the end students gathered with the video teachers to take selfies and have autographs signed including the Algebra Nation workbooks.

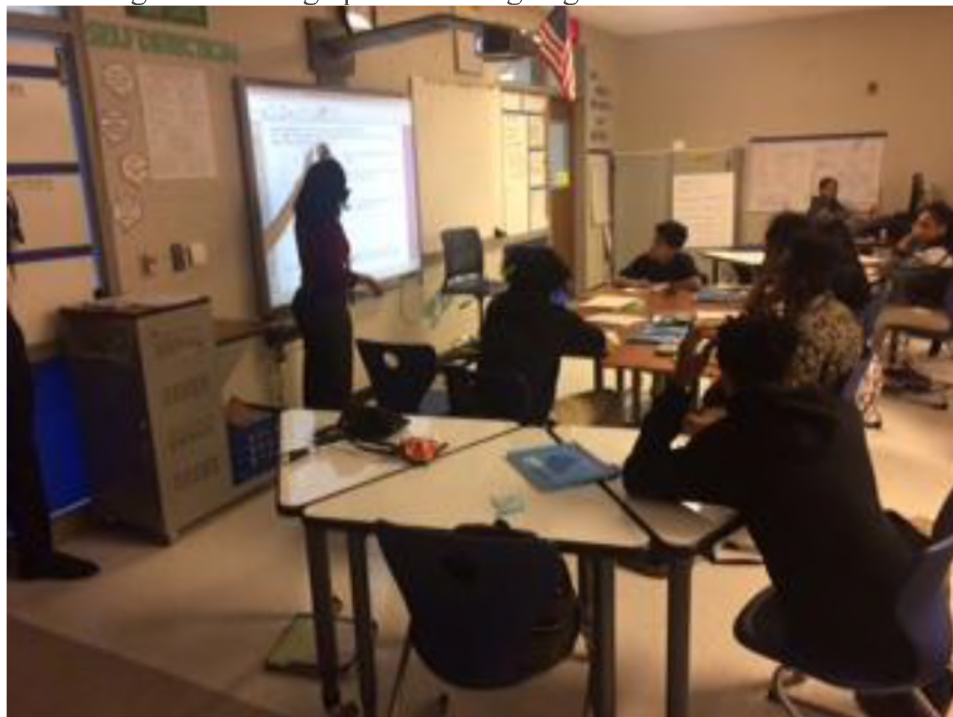


Besides students, district office, local education, and state legislative leaders were also in attendance.

Ms. Jenell Riley's Intermediate Algebra Class
R.B. Stall High School
3 November 2017

9:15 – 9:55 a.m.

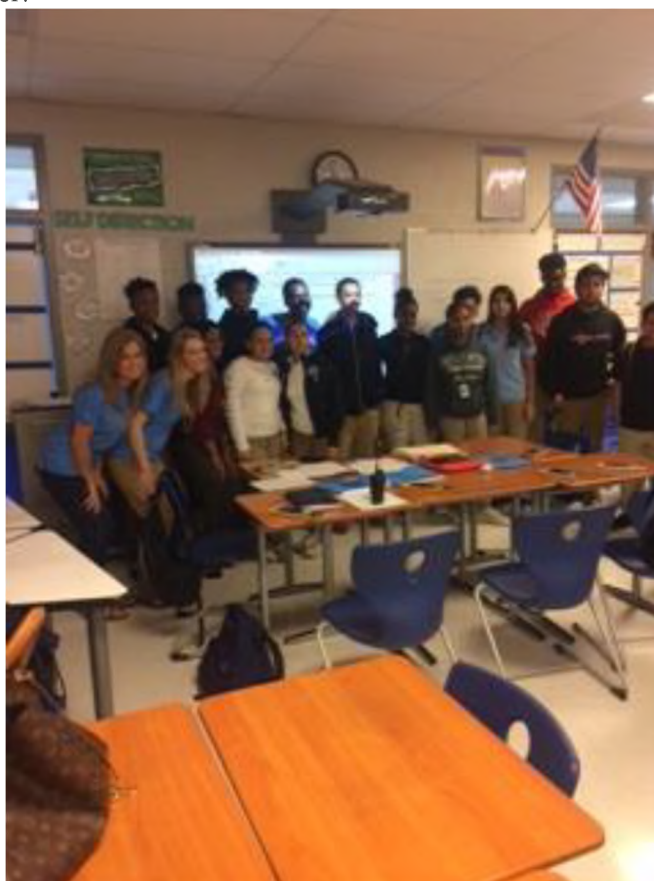
After the pep rally visitors were provided the opportunity to observe two difference algebra classes. One class included a room at which the teacher, Ms. Riley, was providing instruction to a small group about finding average rate of change using a cost function while other groups of students were learning either through peers or using Algebra Nation videos.



One group of 5 Spanish speaking student (below, left) were posing problems requiring the use of the distributive property then solving them together. A different group of about 8 students were working at stations with either computers or tablets to view Algebra Nation videos. All students were engaged and on task. The Spanish speaking students were enthusiastic about their work.



At the end of the class period, students were eager to pose for a picture with the video instructors and their regular teacher.



10:00 to 11:00 Panel Discussion

A panel of 5 students were assembled to provide their perspective on Algebra Nation materials and to answer questions. The students expressed that they liked the ability to pace their own learning as well as the opportunity to peer teach, to explain algebra to other students because it helps them understand. They indicated that they viewed the videos at home, typically on their phones. They were very positive about the usage and even when pressed offered no criticism or suggestions.

After the students, a panel of 4 teachers provided their perspectives. This group included the teacher in whose classroom the observation occurred as well as another teacher who was observed by another group. A new teacher in her first year of teaching was on the panel as was a school administrator who prior to this year was the school's math department head.

The teachers expressed how much they liked the flexibility that Algebra Nation provides them. They considered the resources as being comparable to having another teacher in the room with them. One teacher found Algebra Nation similar to a resource she used in prior years but the big difference was she noticed students "bought in" to Algebra Nation. They find the instruction and materials very engaging. The teacher also expressed that the materials encouraged her to use more real world examples.

The school principal pointed out how beneficial it was for the teachers to be able to view the video instruction and he considered this to be a form of teacher development. The teachers agreed that they often learned new teaching methods and ideas from viewing the videos. It helped them think differently about how and what they taught. The first year teacher expressed how helpful and supporting it was to have the materials and contrast her success this first year to how difficult she found her student teaching to be.

One teacher pointed out the one day of professional development did not sufficiently prepare her for using Algebra Nation, but she agreed with the recommendation provided by Amy Adams to teach through an entire unit of study with Algebra Nation to establish the teaching strategies. She felt that after completing a unit, she was much better prepared.

A comment was made about how Algebra Nation provides teachers with formative assessment tools. A district office representative pointed out how the On Ramp tool is being used in middle grades to assess and help address math weaknesses.

The teachers were concerned that the Algebra 1 End-of-Course test results may not document the gains their students have made so far this year. They pointed out that many students came from middle school setting at which they did not have a math teacher and missed key concepts. The teacher expressed the need to address students' learning needs, which may not match material tested. She pointed out that students were much more positive and enthused about learning math.

Algebra Nation School Visit and Observation

Southside Middle School
Florence County School District 1
Mr. Scott Carter
8th Grade Algebra 1

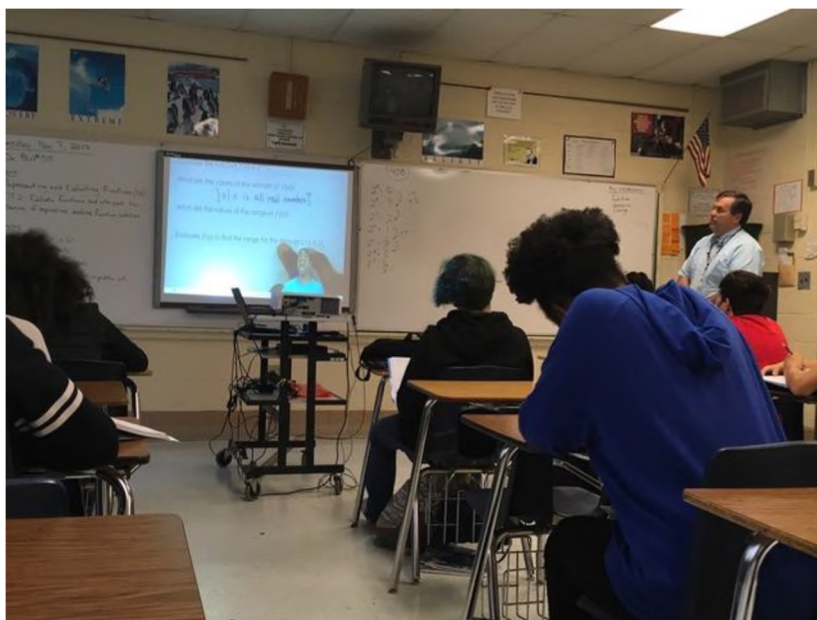
Mr. Carter had planned a demonstration lesson. Three news reporters from local media were in the room with two cameras filming. There were 17 students in the class.

Mr. Carter introduced the lesson that addressed representing, naming and evaluating functions and the use of **Algebra Nation** materials. He used the white board to demonstrate patterns of powers of 2 helping students see the result from a negative exponent. He had anticipated the introduction of negative exponents on the video and wanted to ensure understanding of this new concept. Mr. Carter alluded to the favorite video tutor that students might have and indicated that he had selected Darnell because of how Darnell explains this concept.

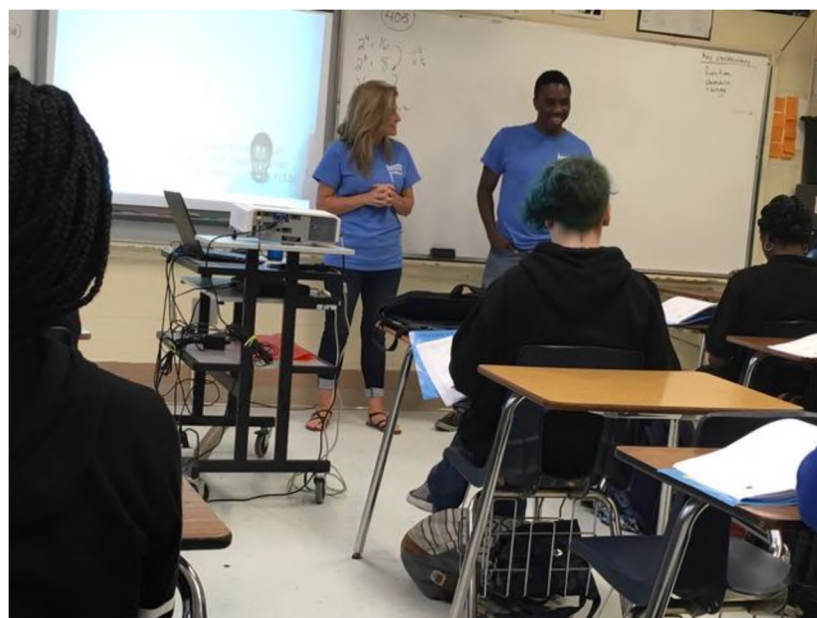


Students attended to the tutor on the video and took notes. Mr. Carter interjected clarifications and paused the video to ask questions and hear student responses. At one point Mr. Carter paused the video and had students write out their own solution on their papers then check the result using the video.

The video used a word problem and Mr. Carter pointed out that this was the type of problem the students find to be difficult. Darnell on the video worked through an example with donuts then worked backwards given the amount spent. Mr. Carter would interject over the video with clarifications. He paused the video and asked students to complete the exercises in the **Algebra Nation** workbook similar to what was on the video. Students were told to finish the work as part of homework.



As part of a planned **Algebra Nation** school visit, Darnell came into the class for a visit along another video tutor, Amy Adams. Students were excited to see the video tutors and expressed what they liked about **Algebra Nation**: the different tutors and the pacing each one uses (some slowly with details, some more quickly for review). Some students are using the Wall and said the Wall helped. They get help from students across the state and some provide help on the Wall. Amy suggested using the Test Yourself Practice tool. Students indicated they use the workbook every day.



Algebra 1 Observation for Algebra Nation (AN)

Tom Mauldin
Cheraw High School
8 November 2017

9:30 - 10:00 a.m. second block Algebra 1 class

Cheraw High is located in Chesterfield County and is the only high school for the Cheraw attendance area. The school enrolls approximately 700 students with the racial make up at about 50/50 (African American/White). The school does not enroll enough Hispanics to make the minimum N count of 20 for state testing. The school's poverty rating is approximately 70%.

A large contingency of people were on hand to visit the class including the principal, superintendent, local member of the House of Representatives, assistant superintendent for instruction, director of CATE, director of IT, director of secondary education, and the lobbyist for Algebra Nation. Present from Algebra Nation were Amy and Darnell.

The teacher, Tom Mauldin, is an experienced teacher with 33 years of experience. Thirty-one of these years were in North Carolina and the last two years he has been at Cheraw High. He commutes from North Carolina, which is approximately a 20-mile drive. He was certified originally in North Carolina through the traditional teacher certification program.

Mr. Mauldin teaches 80 Algebra 1 students in six classes per day. The class I observed had 12 students with mixed abilities. Three students were special education students and two students might be better served in honors Algebra 1 (as reported by the teacher). The student make up was nine African American and three White. There were five females and seven male students.

Mr. Mauldin was praised by his principal and superintendent as an excellent teacher. I observed his ability to communicate well with the students and the positive relationship with the students. He very engaged with each group of students and was respectful of their questions.

The class began with the teacher taking up homework as part of the exit ticket from yesterday's class. Students were directed to the white board with directions to begin in AN Section 2 Equations and Inequalities. Students were to complete the Test Yourself section in Algebra Nation.

The teacher reminded the students that as they answered the questions, the program would place a "check mark" beside each question. The "check mark" did not mean the answer was correct, only that the student had answered the question. He further explained that the program would provide assistance to the student if they missed the question. Students were working out problems on scratch paper. The students spent the next 20 minutes completing the Test Yourself section.



Students were in small groups with desks in a circle. The teacher reported that he liked having students in small groups in which students were placed by ability levels. He was able to provide greater assistance in this way and he found students were more willing to assist each other in this small group arrangement.

There were no Internet issues on the day of the observations but the teacher reported occasionally, especially in the afternoon there were accessibility issues. (One student could not log on and the teacher sent the student to the teacher computer and the student was able to log on.)

Interestingly, Algebra Nation had only been fully functional for about a month. The school had recently purchased a set of 30 Chrome books for the entire school! Mr. Mauldin had access to them for the next two weeks, as the Chrome book would be rotated to other classes. I was not able to discern when he would get this set returned for student use. In light of this, Mr. Mauldin had purchased 10 Chrome books with his own funds so his students would have access when the school's set of Chrome books were not available.

The Algebra Nation folks present used the remaining class time to have a question and answer session with the teacher, students and visitors. One student stated she liked AN because it allowed her to move along at her own pace and be challenged. (The teacher noted to me that this student needed acceleration and her father had already spoken with the teacher about the student being bored.)

Another student indicated that the Test Yourself section was very hard but with the solution videos he is beginning to feel better about his ability in algebra.

Another student asked if she could use the program over the summer since she tends to forget what she has learned the previous year. AN staff indicated that would be available and AN would have to work out the details with the district staff.

Overall, the superintendent, principal and teacher were very supportive of the AN program. They all felt the AN staff members were very supportive to the school needs and to the teacher. They indicated that AN was willing to come on site to work out any issues the school/teacher may be experiencing.

The teacher further stated that he liked AN because it allowed for differentiating instruction for students who needed remediation as well as for students who needed to be challenged. The teacher felt the greatest challenge was getting students to “buy in” to AN. He stated there were wonderful resources for students to access on their own at home but all students had not taken advantage of it. He started assigning homework on AN but had pulled back because parent complaints (most probably the issue of internet access). It is noted only four students did not have Internet access at home. The teacher allows students to check out his personal Chrome Books in order for them to have access and take away the excuses. To date, no student has taken him up on his offer.

AN staff noted that AN is available on all devices such as phone, tablets and computers and has recently upgraded its app to allow students to download AN lessons for use at home, on the bus, etc.

The teacher is working to find ways to encourage students to buy in to AN. He is giving extra credit for students that post or answer a question on the Algebra Wall. He says that word is getting around quickly with the students and he is seeing more of them take advantage of it.

Teacher also allows students to retest in AN and take the greater test score.

During discussions with the superintendent, principal and teacher, they indicated they see other uses of AN such as when a teacher is absent, when a long-term substitute is in a class as well as when a teacher needs support in some of the algebra content.

There was lots of discussion among the district and school administrators along with the Hose member regarding Internet access in the school and funds for 1:1 device for students.

MCOP² Form for Tom Mauldin

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description	Comments
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.	2 - All students engaged + on task; however, task was low level.
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.	
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.	
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.	

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description	Comments
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.	NA
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.	
1	The students manipulated or generated one representation of a concept.	
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.	

3) Students were engaged in mathematical activities.

SE	Description	Comments
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)	3 - All students engaged.
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.	
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.	
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.	

4) Students critically assessed mathematical strategies.

SE	TF	Description	Comments
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	NA
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.	
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description	Comments
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	<p>2 -</p> <p>Students were working on problems to answer the AN Practice 1st question</p>
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.	
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.	

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description	Comments
1	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	NA
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.	
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.	

7) The lesson promoted modeling with mathematics.

TF	Description	Comments
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).	NA
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); or modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.	
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.	
0	The lesson does not include any modeling with mathematics.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description	Comments
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.	NA
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.	
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.	
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.	

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description	Comments
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.	1- Noted a couple of students using different strategies to solve problem on AN.
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; <u>or</u> more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; <u>or</u> a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.	

10) The lesson promoted precision of mathematical language.

TF	Description	Comments
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.	NA
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.	
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.	
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.	

11) The teacher's talk encouraged student thinking.

TF	Description	Comments
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. Analysis : examines/ interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.	1- T. talk was more giving direction
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.	
1	Teacher talk consists of " lower order " knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.	
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.	

12) There were a high proportion of students talking related to mathematics.

SE	Description	Comments
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	NA
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
1	Less than half of the students were talking related to the mathematics of the lesson.	
0	No students talked related to the mathematics of the lesson.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments
3 - high levels of respect in classroom

14) In general, the teacher provided wait-time.

SE	TF	Description
3		The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2		The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1		The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0		The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments
NA

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description
3		Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2		Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1		The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0		No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments
2 - students spent time discussing problems w/ one another

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

SE	TF	Description
3		The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2		The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1		The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task verses conceptual knowledge of the content.
0		The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments
2 - teacher discussed problems of students on an as-needed basis

Additional Notes: Presence or Inservice, Live or Video, #Students, Grade Level, topic/subject, date, other demographics, school, etc.

Algebra 1 Observation for Algebra Nation

Wendy Major
Greenwood High School
January 11, 2018

1:50 to 3:20 pm 4th Block Algebra 1 Honors class

Wendy Major teaches semester long algebra courses and makes active use of Algebra Nation. This was the fifth day of the new semester in her Algebra 1 Honors course. After the bell rang she took roll silently then asked students to take out paper for notes and oriented students to using the Algebra Nation workbook. She wondered aloud about the order of the topics in the workbook but informed students that she planned to organize the course sequence consistent with the workbook sequence.

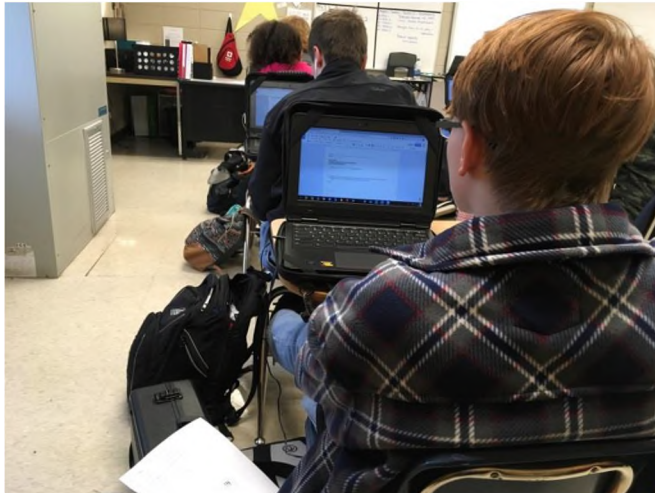
Ms. Major oriented the students to what would happen in class. First she returned a quiz she had created and reviewed the students' performance with them. She announced that the class would be assigned section 1 topic 2 from Algebra Nation for individual and group work after the quiz.



Students silently and individually reviewed what was missed on the quiz and were asked to check with friend or Ms. Major on what might be needed to help them understand what they got wrong on the quiz. There will be graded work later to check on understanding.

There were no questions so students were asked to get out their Chromebooks and access Google Classroom. Students had received instruction from Ms. Major and from Algebra Nation videos. They had 10 minutes to work on the prepared sheet individually to demonstrate understanding. Students were allowed to use earbuds for music as they worked in this assignment. Students

seemed familiar with the process and were all on task. Independent Practice from the Algebra Nation web site was the source of the student worksheet.



Ms. Major had noticed that the Word document was not using the equation editor to display algebraic expressions. Students helped find a way to get equations to show by opening the document in a new window. Ms. Major also expressed concern about having the Instructional Practice problems with copy and paste option from Word.

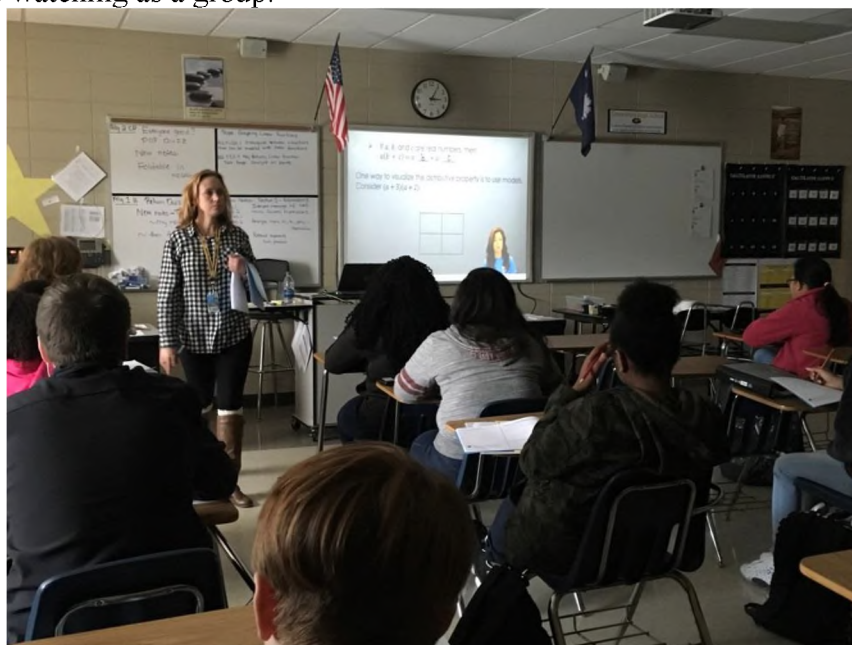
The mathematical content of the practice work addressed terminology like standard form, and naming type of polynomials (e.g., binomial, trinomial) requiring students to apply these terms. After 10 minutes of individual work students were allowed to work in small groups to compare answers. Some students continued to work alone and Ms. Major indicated that the choice to work in groups was theirs to make. About two-thirds of the class worked in groups, mostly in pairs. All students were on task. Ms. Major encouraged students to stay on task and complete the practice sheet. As they finished she collected the completed papers. At 2:45 she collected all papers and asked students to return to seats and put away Chromebooks



Students were instructed to write in their paper notebooks. She told them to write numbers 1 to 85. She brought the students' attention to her in the front. She explained she expected parent signatures by each number on this sheet over the semester. Students are to tell parents to sign verifying that the standards have been addressed. Ms. Major will send out emails to parents explaining what is expected of them.

Students were asked to get out the Algebra Nation workbooks and begin work on the section addressing the distributive property. Ms. Major expressed skepticism about the approach used by Algebra Nation, the block method, but said she wanted to try it. The class will watch the video with the Algebra Nation instructor, Amy, teaching the lesson as a group. Class was interrupted briefly for candy distribution for a school contest.

In the past students had used Algebra Nation videos individually choosing their own tutor. This is the first time watching as a group.



Ms. Major showed what she believed was the method students had already used: FOIL. She then demonstrated how to distribute each term of the binomial to the other binomial. She tied this to what she called CLT, combining like terms that they had learned previously. She returned to the video to allow Amy to complete the explanation. As class ended she assigned Algebra Nation practice work on the distributive property.

Because the lesson was at the very beginning of the semester, the emphasis was on terminology so little emphasis on problem solving or applications were made. Ms. Major was expert at classroom management and it was clear that behavioral expectations had been established. The students were very respectful and eager to participate. There was clearly a very positive rapport between the teacher and her students. Ms. Major also managed the instructional transitions expertly moving fluidly between lesson components informing and orienting students throughout the lesson. The Algebra Nation material from the website, workbook, and videos served her instructional needs well.

MCOP² Form for Wendy Major

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description	Comments
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.	intro lesson
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.	
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.	
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.	

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description	Comments
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.	Model for distributive as area
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.	
1	The students manipulated or generated one representation of a concept.	
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.	

3) Students were engaged in mathematical activities.

SE	Description	Comments
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)	All students attended to the teacher led work on meaning of algebraic terms.
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.	
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.	
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.	

4) Students critically assessed mathematical strategies.

SE	TF	Description	Comments
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	Nearly all worked in pairs or groups on practice after individual work
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.	
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description	Comments
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	Problem solving not part of planned lesson
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.	
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.	

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description	Comments
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	Addressed state standards about terminology & properties
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.	
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.	

7) The lesson promoted modeling with mathematics.

TF	Description	Comments
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).	Data model for distribution property
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); or modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.	
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.	
0	The lesson does not include any modeling with mathematics.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description	Comments
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.	Structure of distributive property address
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.	
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.	
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.	

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description	Comments
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.	The teacher was careful to consider past knowledge of the dist property (FOIL) as new knowledge (Block)
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; <u>or</u> more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; <u>or</u> a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.	

10) The lesson promoted precision of mathematical language.

TF	Description	Comments
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.	Teacher was very careful with terms
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.	
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.	
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.	

11) The teacher's talk encouraged student thinking.

TF	Description	Comments
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. Analysis : examines/ interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.	The nature of the introductory lesson did not lend itself to high levels.
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.	
1	Teacher talk consists of " lower order " knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.	
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.	

12) There were a high proportion of students talking related to mathematics.

SE	Description	Comments
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	All students talked at some point.
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
1	Less than half of the students were talking related to the mathematics of the lesson.	
0	No students talked related to the mathematics of the lesson.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments
All students shared, questioned & commented.

14) In general, the teacher provided wait-time.

SE	TF	Description
3	3	The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2	2	The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1	1	The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0	0	The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description
3	3	Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2	2	Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1	1	The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0	0	No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

TF	Description
3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task verses conceptual knowledge of the content.
0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments

Additional Notes: Preservice or Inservice, Live or Video, #Students, Grade Level, topic/subject, date, other demographics, school, etc.

Algebra 1 Observation for Algebra Nation

Russell Saunders
Midland Valley High School
February 12, 2018

11:55 am to 12:45 pm Algebra 1 Lab class

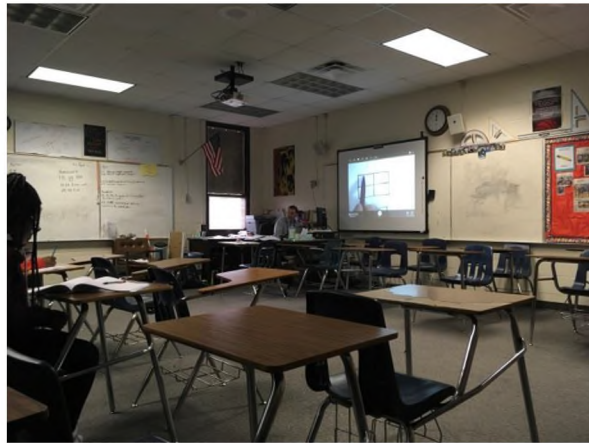
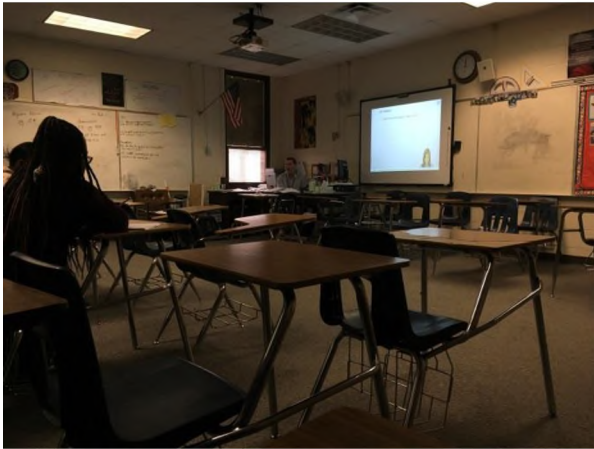
Russell Saunders teaches a lab class for students who are struggling with algebra. All students have access to Algebra Nation workbooks. As they entered class after lunch they picked up their workbooks and took their seats.

After the bell rang Mr. Saunders asked students to turn to page 126 in their workbooks where they had left off from the previous class. He reminded students that they had been working on factoring quadratic expressions and were now beginning to use factoring to solve equations.

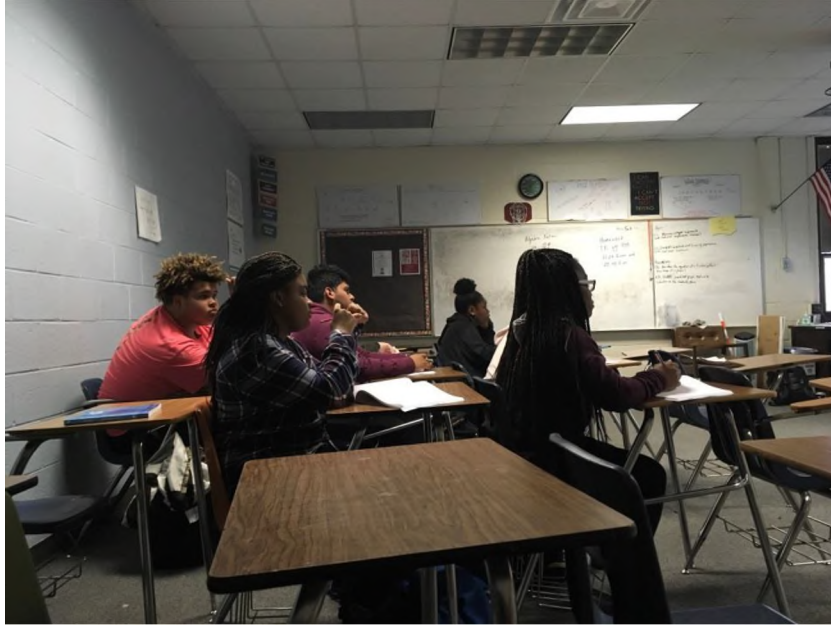
A video with Algebra Nation tutor Amy was shown introducing the concept and method for solving

$$b^2 + 8b + 15 = 0$$

Mr. Saunders demonstrated the area model for factoring the quadratic as used in the video and stated that he found this to be the best way to factor the quadratic. He demonstrated the area model method on the interactive white board while students took notes on their workbooks.



After his demonstration, Mr. Saunders returned to the video with Amy explaining how to use the zero product property to find the two solutions. He paused the video and reiterated the explanation given on the video. Students were paying attention to both Mr. Saunders' explanations and the video instruction. Mr. Saunders added what the number of solutions for this equation was 2 and sometimes there are no solutions or just 1.



He allowed the video to show a second example for solving by the same method:

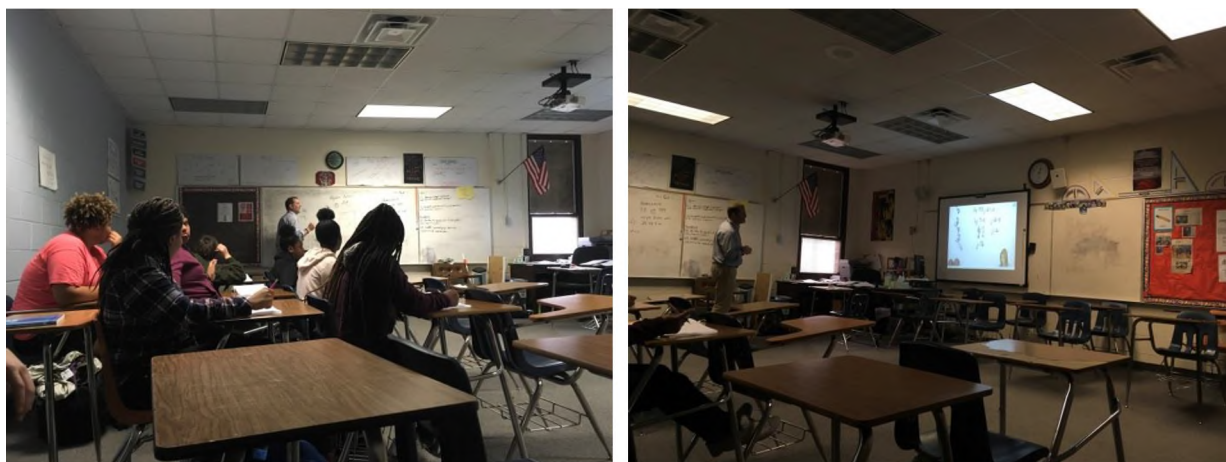
$$10f^2 + 17f + 3 = 0$$

After Amy began the second example Mr. Saunders paused the video and explained the solution method in his words allowing students to ask questions. He paused and asked students to provide the solution values that would come next in the video. He explained how they are moving to the next step that takes the factored expression and uses the zero product property to find solutions. The example included fractions. A student asked how the 5 ended up in the denominator and Mr. Saunders explained at the board.



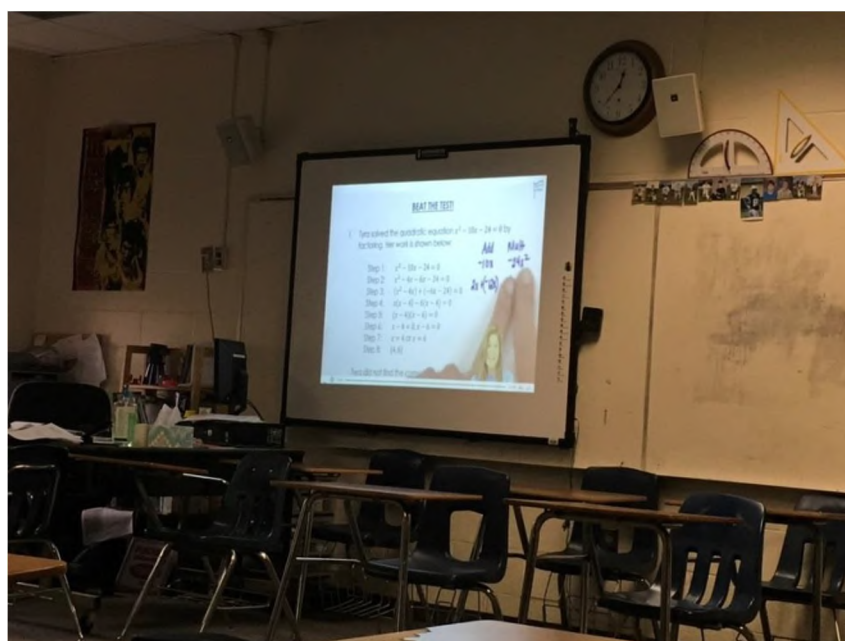
An example for students to try on their own was given: $6j^2 - 19j + 14 = 0$

Mr. Saunders worked the third example on the whiteboard as the student did the same work on their workbooks. He provided calculators to find 6 times 14 because the factoring result had to add to -19. He guided students to reasoning why both factors were negative. They listed all the factors of 84 to find which added to -19 reaching -7 and -12 after trying several values. He pointed out the need to persevere to find the factors. He used questioning to work with the students to arrive at the factors for them to find the two solutions.



Mr. Saunders used the fast forward feature of the video to move to the point where he had left off from his explanation at the board and then showed the final solutions set using Amy's explanation.

The video next showed a *Beat the Test* example that had an equation solved in 8 steps. Mr. Saunders challenged the students to find the step with a mistake. They found the mistake and Mr. Saunders praised their work. He played the video to show the explanation, the solution, and the mistakes.



As Amy arrived at the two final equations, Mr. Saunders paused and asked the class to work to find the two solutions, which they did. He called on Trinity who didn't find the solution but Charity found one and Persa found the other.

The video mentioned the importance of checking solutions and to use this strategy when taking "important test." Mr. Saunders reiterated the point made on the video.

He summarized the lesson and the goal for the day. Students returned their calculators and workbooks as the classes ended.

Mr. Saunders made effective use of the video tutor and interjected his own explanations. Students benefited from the instructional approach using the perspectives of two teachers (Mr. Saunders and Amy). Mr. Saunders indicated that he selected Amy's instruction because he found her pacing best fit the needs of her students and he felt her handwriting was easier for students to read. He indicated that students on their own prefer to have Darnell as the tutor. He felt other tutors pace the lesson too quickly or their explanations aren't as clear as those of Amy and Darnell. He appreciates having the workbooks as they allow students to keep track of their progress. He also makes use of the Test Yourself and On Ramp features citing that On Ramp has helped him identify students' weaknesses or the gaps in their mathematics learning.

MCOP² Form for Russell Saunders

Russell Saunders Midway Valley HS 12 Feb 2018

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description	Comments
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.	<i>Students investigated finding factors</i>
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.	
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.	
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.	

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description	Comments
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.	<i>Symbolic factoring and area model used.</i>
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.	
1	The students manipulated or generated one representation of a concept.	
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.	

3) Students were engaged in mathematical activities.

SE	Description	Comments
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)	<i>Students interacted with feedback</i>
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.	
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.	
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.	

4) Students critically assessed mathematical strategies.

SE	TF	Description	Comments
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.	
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description	Comments
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	When can I work with find factors of 84 students persevered I used calculators to find factors
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.	
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.	

6) The lesson invoked fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description	Comments
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	Teacher worked to build conceptual understanding of equation solving through area model.
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.	
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focussing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.	

7) The lesson promoted modeling with mathematics.

TF	Description	Comments
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).	
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); <u>or</u> modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.	
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.	
0	The lesson does not include any modeling with mathematics.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description	Comments
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns .	
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.	
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.	
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.	

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description	Comments
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.	
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; or more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; or a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.	

10) The lesson promoted precision of mathematical language.

TF	Description	Comments
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.	
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.	
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.	
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.	

11) The teacher's talk encouraged student thinking.

TF	Description	Comments
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. Analysis : examines/interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.	
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.	
1	Teacher talk consists of " lower order " knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.	
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.	

12) There were a high proportion of students talking related to mathematics.

SE	Description	Comments
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
1	Less than half of the students were talking related to the mathematics of the lesson.	
0	No students talked related to the mathematics of the lesson.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments

14) In general, the teacher provided wait-time.

SE	Description
3	The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2	The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1	The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0	The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	Description
3	Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2	Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1	The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0	No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

TF	Description
3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task versus conceptual knowledge of the content.
0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments

Additional Notes: Présence of Inservice. Livé or Vidéo. #Students, Grade Level, Topic/Subject, date, other demographics, school, etc.

The lesson focused on using factoring to solve quadratic equations. Video instruction served to demonstrate the algebraic method of solution. Students viewed two examples, then tried one on their own but with the teacher working the example on the board.

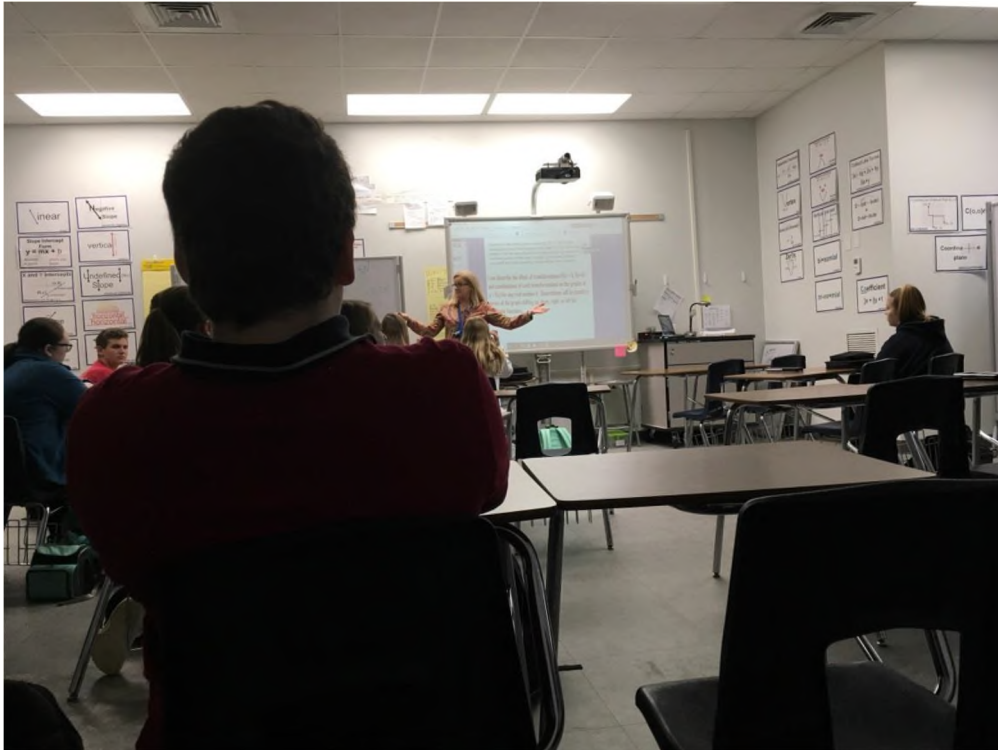
Algebra 1 Observation for Algebra Nation

Kathi Haynie
Belton Middle School
February 13, 2018

10:09 to 11:59 am Algebra 1 High

Kathi Haynie teaches several section of Algebra 1 to advanced middle school students. She is in her 29th year of teaching and expressed enthusiasm to the potential that Algebra Nation resources bring to her teaching. While her students have access to Algebra Nation workbooks, she prefers to create her own worksheets. Before class began, she expressed her concern that students watching the video often complete the workbook or worksheet pages without thinking about concept being learned. To address this, she has used segments of videos with “time-stops” for students to pause the video, complete the written work, and then have her check for understanding. A school assistant principal who was a former mathematics teacher was in the room for this class to observe and assist Ms. Haynie.

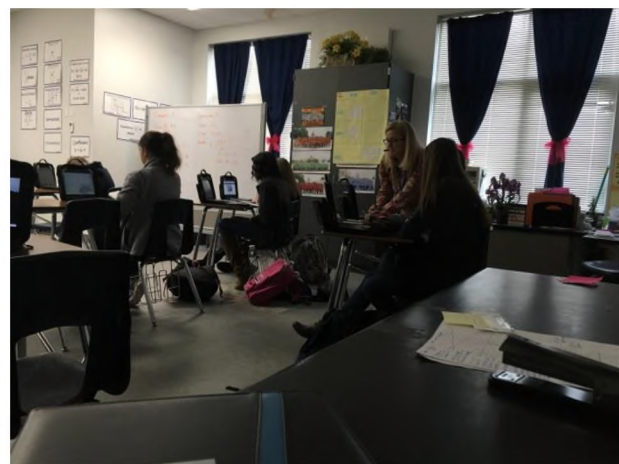
After the bell rang, Ms. Haynie brought students’ attention to the standard addressed as part of the day’s class that was projected on the interactive white board. She then asked for students in their own word to explain what a transformation means. She used discourse to bring in the word “shift” as into the definition then reviewed the direction of vertical and horizontal shifts based on the number added.



Ms. Haynie used questions and discussion to explain the effect of a transformation in terms of left/right or up/down shifts. This helped her explain that the day's lesson was to include a combination of transformations. She provided a graphical example with $g(x)$ and used the term dependent value to stress definitions of independent and dependent variables, another South Carolina standard expectation.

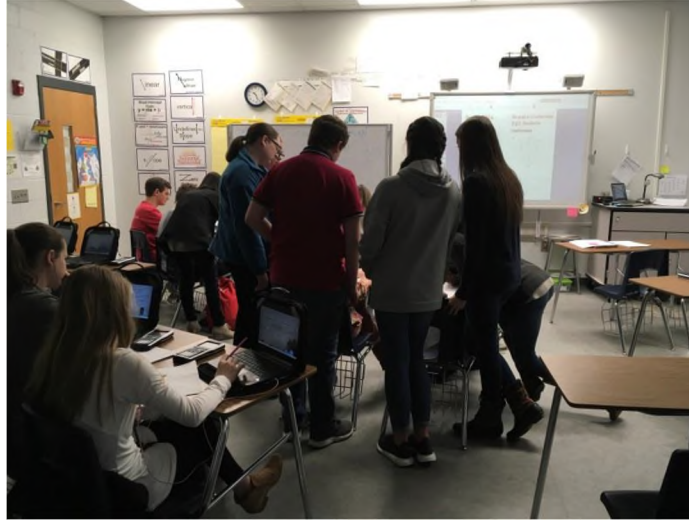
Ms. Haynie asked students to take out the worksheet they had used on the day before. Each student had a Chromebook and accessed Algebra Nation videos to support the work on the sheets. There was mention of two students (out of 24) having access problems in the last class, but there had been resolved. All students accessed the videos quickly with confidence and ease.

Most students had their own headphones but extra headphones were available and a few students used those. Ms. Haynie used time codes from the video as stop points to allow her to assess student understanding. Students would raise their hand when reaching the time code for stopping and after explaining their interpretation orally to the teacher, receive a check mark on the problem on the worksheet. The assistant principal helped assess and check students' work as well as Ms. Haynie.



The video lesson had Darnell explaining the table values of a function transformed by adding 2. Students were to do similar work, then have Ms. Haynie or the teaching assistant check their work.

When Ms. Haynie noticed a problem among several students interpreting how to find the shift from the video, Ms. Haynie brought 6 students together to explain the concept differently in what she called "mini-workshop." She explained the translation from the video using independent variable and shift. She supplemented the method used by Darnell that required equation solving to a method using the graphical representation of the shift. Students then had two interpretations: a symbolic and a graphic.



When the small group lesson was finished Ms. Haynie went back to checking the work of paired student groups ensuring that both students in the group understood the concept. Students were to show her the work they completed and explain in their own words so she was assured of understanding.

All students were on task throughout the lesson. They worked effectively in pairs. Ms. Haynie monitored progress carefully, and students were diligent about having work checked before progressing to other problems. As the class ended, Ms. Haynie asked students who had not finished to do some for homework.

11:02-11:54 am

A second algebra 1 class came in and Ms. Haynie taught the same lesson again.

In this class, students worked independently in pairs for nearly the entire period allowing Ms. Haynie time to work with 2 students who were struggling with the concept. All students were on task whether working independently or with the teacher.

Ms. Haynie expressed to me that the use of the videos has increased the rigor of her teaching. Not only is she attending to different presentation methods, but she has also increased her use of formative assessment because the videos provide an instructional assistant allowing her time for assessment. She selected the videos with Darnell based on students' input. She prefers to write her own worksheets but will consider using the ones provided by Algebra Nation. She expressed concern for the inefficiency of checking each student for understanding, and we discuss strategies that delay the assessment until the end of a week or the unit as an alternative.

MCOP² Form for Kathi Haynie

Kathi Haynie Belton Middle School 8th Grade Alg 1 13 Feb 2018

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.

Comments
Students investigated the effect of vertical & horizontal shifts on graphs: $f(x+k)$ $f(x)+k$

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.
1	The students manipulated or generated one representation of a concept.
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.

Comments
Used symbolic & graphical representations.

3) Students were engaged in mathematical activities.

SE	Description
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.

Comments
All students were engaged throughout the lesson period.

4) Students critically assessed mathematical strategies.

SE	TF	Description
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.

Comments
The teacher expected each student to critically assess the strategy used & to explain orally the interpretation.

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.

Comments
All students persevered to apply the strategy. Struggling students received extra help and showed appreciation.

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.

Comments
The teacher directly addressed the standards and frequently referred to it.

7) The lesson promoted modeling with mathematics.

TF	Description
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); or modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.
0	The lesson does not include any modeling with mathematics.

Comments

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.

Comments
The teacher emphasized the structure of the sign (+, or -) and how it effects the shift.

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; or more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; or a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.

Comments
The symbolic and graphic representations were a secondary focus

10) The lesson promoted precision of mathematical language.

TF	Description
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.

Comments
The teacher was very careful to use precise language

11) The teacher's talk encouraged student thinking.

TF	Description
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. Analysis : examines/ interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.
1	Teacher talk consists of "lower order" knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.

Comments
Students examined and interpreted patterns and were expected to verbalize their findings.

12) There were a high proportion of students talking related to mathematics.

SE	Description
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.
1	Less than half of the students were talking related to the mathematics of the lesson.
0	No students talked related to the mathematics of the lesson.

Comments
Each student was expected to explain in own words to teacher.

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments

14) In general, the teacher provided wait-time.

SE	TF	Description
3		The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2		The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1		The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0		The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description
3		Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2		Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1		The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0		No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments
Students worked in pairs throughout lesson

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

TF	Description
3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task versus conceptual knowledge of the content.
0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments

Additional Notes: Preservice or Inservice, Live or Video, #Students, Grade Level, topic/subject, date, other demographics, school, etc.

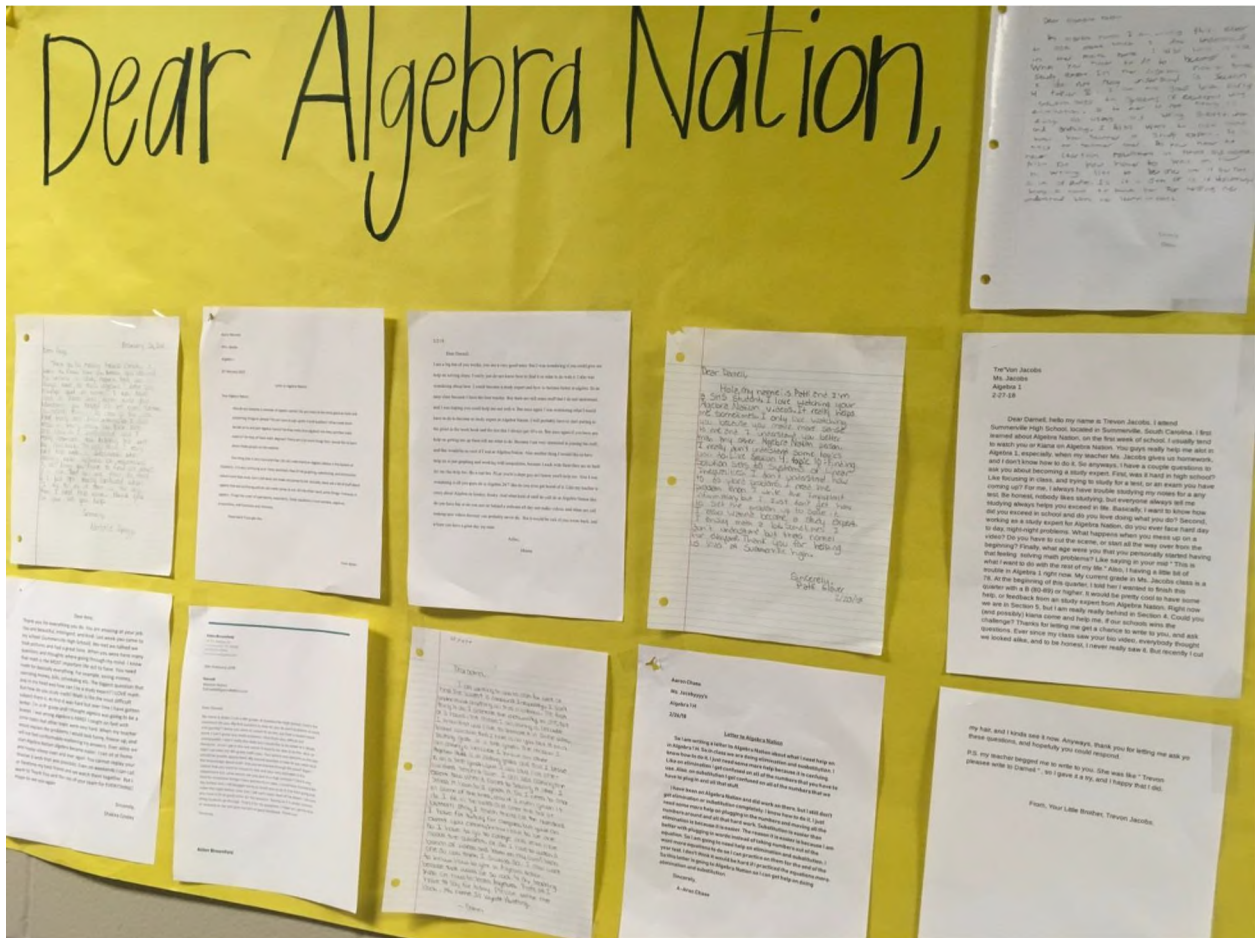
Ms. Haynie made effective use of the Algebra Nation video lesson segment using a portion of the video to address a symbolic solution method that she supplemented with a graphical method that she explained.

Algebra 1 Observation for Algebra Nation

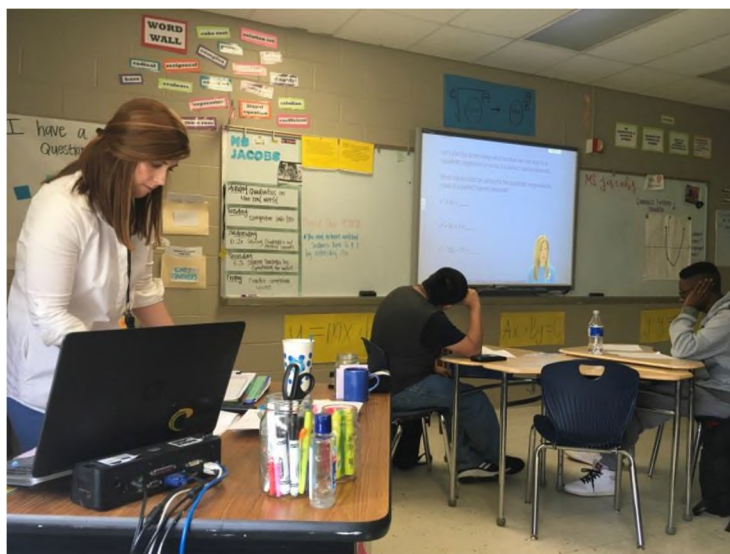
Ashley Jacobs
Summerville High School
March 1, 2018

10:46 to 11:32 am Algebra 1 CP

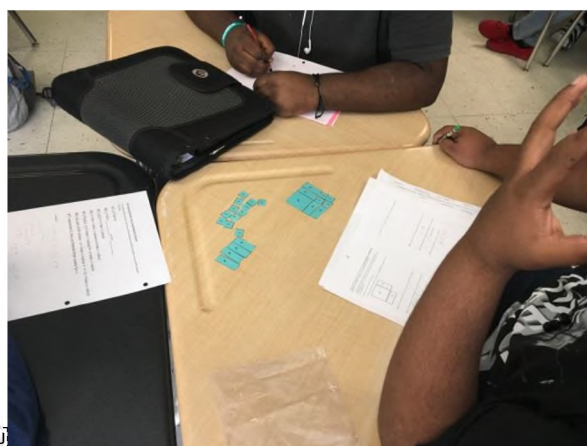
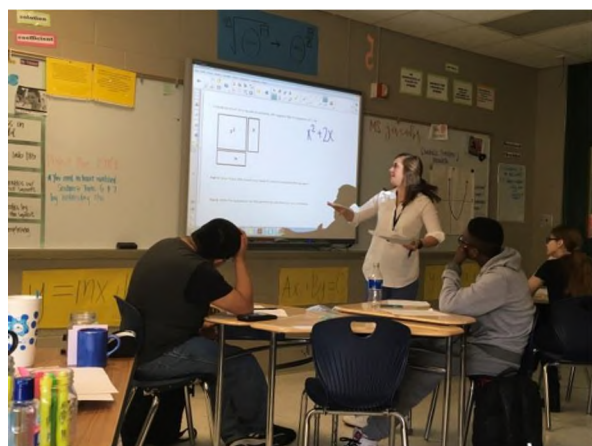
Outside of Ms. Jacobs' room were letters to the Algebra Nation tutors. Tutors Amy and Darnell had visited in the recent past and students enjoyed connecting with the math instructors who they experience via the videos.



As students entered there were instructions on the board about a warm up and reference to the Algebra Nation worksheet that had been printed for each student of the 23 students in this class. Student desks were arranged in groups of 3 or 4 and students were accustomed to working together. When the bell rang Ms. Jacobs reminded students of the day's topic. She let them know the goal of the day's lesson about completing the square. She asked students to view an Algebra Nation video of Amy teaching the topic while she took roll.



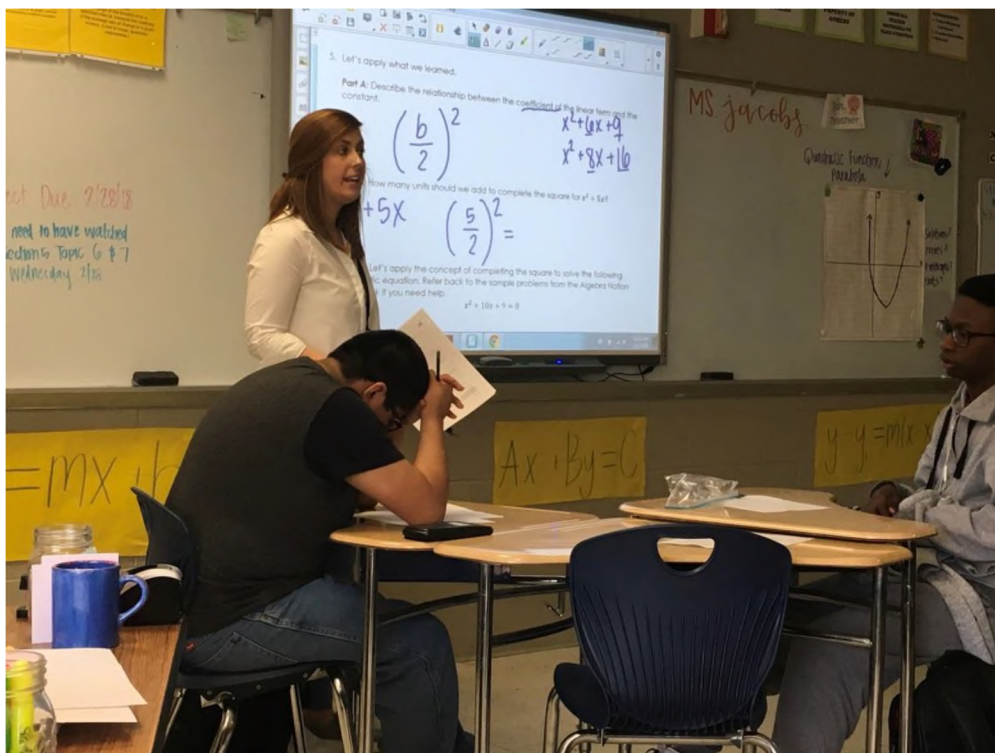
Students had met video tutor Amy earlier and were excited to have her video lesson. The video lesson reviewed how to find the constant value to add to a quadratic that makes it a perfect square when factored. This involved remembering half the coefficient of x squared. She next had the students work in groups to use algebra tiles to model the process linking it to area.



The example she did as a demonstration involved $x^2 + 2x + ?$. She used a worksheet from Algebra Nation. She next assigned the student groups to work in a second example.

Ms. Jacobs noticed some groups making errors with the tiles and helped correct the misconception. She called on members of groups to write the answer to the worksheet problem on the board. There were two more examples to be worked. All examples had an even number of x 's to ensure the perfect square had an area model without fractions

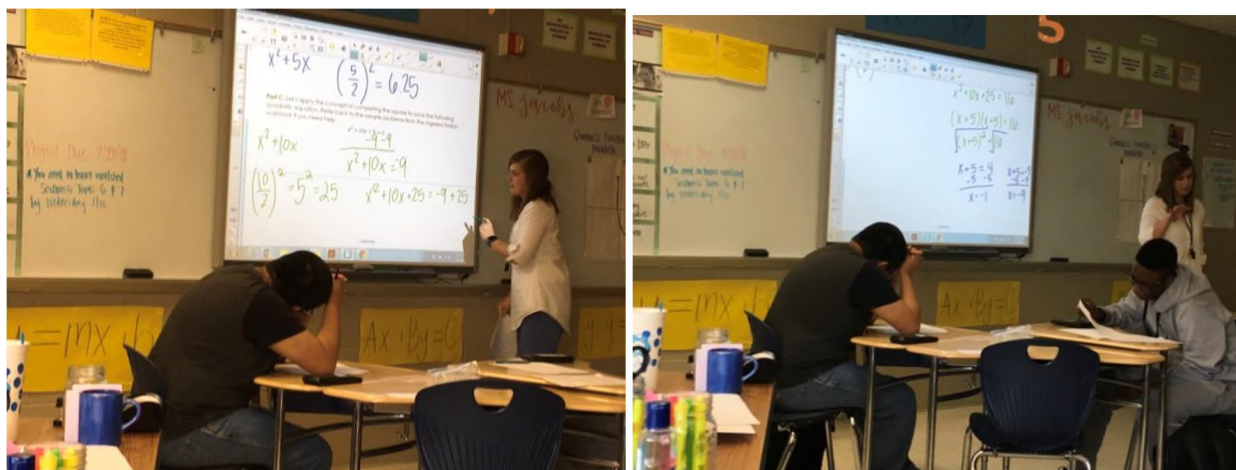
Part B of the worksheet included $x^2 + 5x + ?$. That extended the concrete example to one that is more abstract.



Students used calculators to square $5/2$ instead of staying with fractions. Ms. Jacobs pointed out that modeling this with tiles would require cutting tiles, which she did not want to do.

The final example for Part C foreshadowed equation solving.

Ms. Jacobs continued the example to demonstrate how the completed square solves the equation. She explained how two solutions are the result.

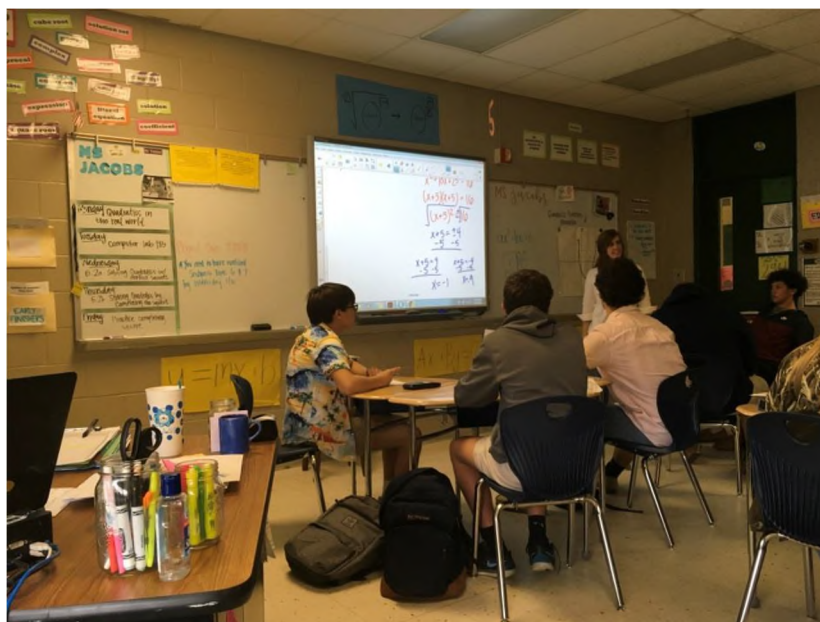


Student groups were to work a similar example on the sheet. As the bell rang the video was assigned as help for the homework that required completing the problems on the sheet.

11:36 am -12:23 pm Algebra 1 High

The next period class entered the room and like the previous one and students were instructed to pick up the Algebra Nation worksheet that Ms. Jacobs had downloaded and printed. She repeated the earlier lesson for the 21 students making up this class.

For this class Ms. Jacobs used + or - to produce two solutions as she and I discussed between classes.



Summary:

Ms. Jacobs made use of video lessons and online worksheet to guide lesson. This allowed her to attend to student understanding while Amy was teaching. She had students watch the video to complete the sheet for homework. The Algebra Nation lesson helped her connect the abstract concept to an area model and to make use of formative assessment tools.

As a post observation discussion with the district mathematics supervisor, Ann Sanderson, we talked about the difference that Algebra Nation materials made to Ms. Jacobs teaching. Ms. Jacobs cited the online tutors helping students as well as the usefulness of the Test Yourself tools. Both explained that using the Algebra Nation materials had helped all the district high school math teacher to examine state standards more carefully and identify instruction that directly addressed the standards. Ms. Sanderson mentioned that the sequence of polynomials in the Algebra Nation workbook influenced the district changing the Algebra 1 pacing guide and that this changed was received as an improvement. Introducing polynomial terminology earlier, as done in the workbook allowed teachers to make a connection between the algebra of polynomials' and base 10 numbers learned in elementary school mathematics. Both Ms. Sanderson and Ms. Jacobs felt that use of the videos had expanded the districts' high school math teachers' instructional skills and ability to address state algebra standards.

MCOP² Form for Ashley Jacobs

Ashley Jacobs Summerville, KS 1 March 2018

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.

Comments
Investigated completing the square algebraically w/ algebra tiles.

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.
1	The students manipulated or generated one representation of a concept.
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.

Comments
Symbolic & area model.

3) Students were engaged in mathematical activities.

SE	Description
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical — such as a coloring activity.

Comments
Students engaged throughout lesson.

4) Students critically assessed mathematical strategies.

SE	TF	Description
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.

Comments
Nearly every student critically assessed strategies as part of group work.

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description	Comments
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	Some students would seek help from teacher instead of persisting or seeking input from peer group members
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.	
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.	

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description	Comments
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	Teacher made direct mention of standard and worked to build conceptual understanding through concrete model.
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.	
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.	

7) The lesson promoted modeling with mathematics.

TF	Description	Comments
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).	Teacher focused on completing square concept. Teacher lesser address quadratic models.
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); or modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.	
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.	
0	The lesson does not include any modeling with mathematics.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.

Comments
The expectation of using tile to "complete the square" required use of structure.

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; <u>or</u> more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; <u>or</u> a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.

Comments
The task of area model represented led to algebraic solution.

10) The lesson promoted precision of mathematical language.

TF	Description
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.

Comments
There was a lack in precision on solving quadratics with two solutions explaining why $x^2 = 9 \Rightarrow x = \pm 3$

11) The teacher's talk encouraged student thinking.

TF	Description
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. Analysis : examines/interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.
1	Teacher talk consists of " lower order " knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.

Comments

12) There were a high proportion of students talking related to mathematics.

SE	Description
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.
1	Less than half of the students were talking related to the mathematics of the lesson.
0	No students talked related to the mathematics of the lesson.

Comments
almost all student talked w/ teacher or peer.

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments
Almost all shared but mostly within groups

14) In general, the teacher provided wait-time.

SE	TF	Description
3	3	The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2	2	The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1	1	The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0	0	The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments
While the class period was short, think time was provided

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description
3	3	Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2	2	Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1	1	The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0	0	No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

TF	Description
3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task versus conceptual knowledge of the content.
0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments

Additional Notes: Preservice or Inservice. Live or Video. #Students, Grade Level, topic/subject, date, other demographics, school, etc.

Observed two classes, one with 23 and other with 21 students. Algebra Nation videos and worksheet use throughout five lesson. Alg 1 CP and honors

Teacher focused primarily on algebraic symbol manipulation skills for completing the square but did make significant effort to build conceptual understanding through area model representation with algebra tiles.

Algebra 1 Observation for Algebra Nation

Sharon Gregory and Dana Jenkins
Midland Valley High School
March 14, 2018

9:54 to 10:00 am Sharon Gregory Homeroom

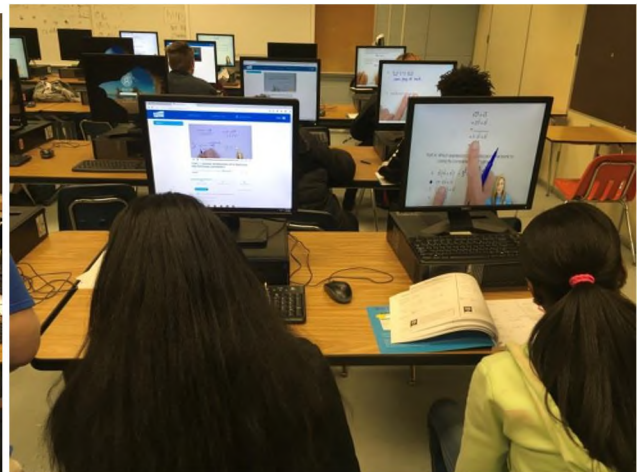
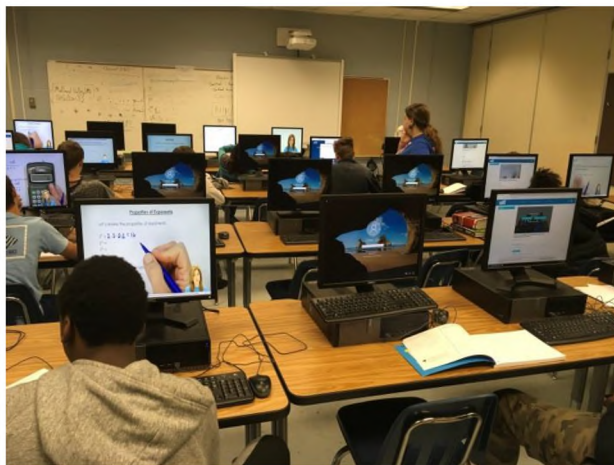
Because of an anticipated student walk out tied to the Stoneman Douglas school shooting one month earlier, the regular class schedule was delayed so that homeroom classes could meet to address the matter without student walkouts. Students in homeroom discussed and completed an online survey about attitudes.

10:25 to 11:00 am Sharon Gregory Intermediate Algebra

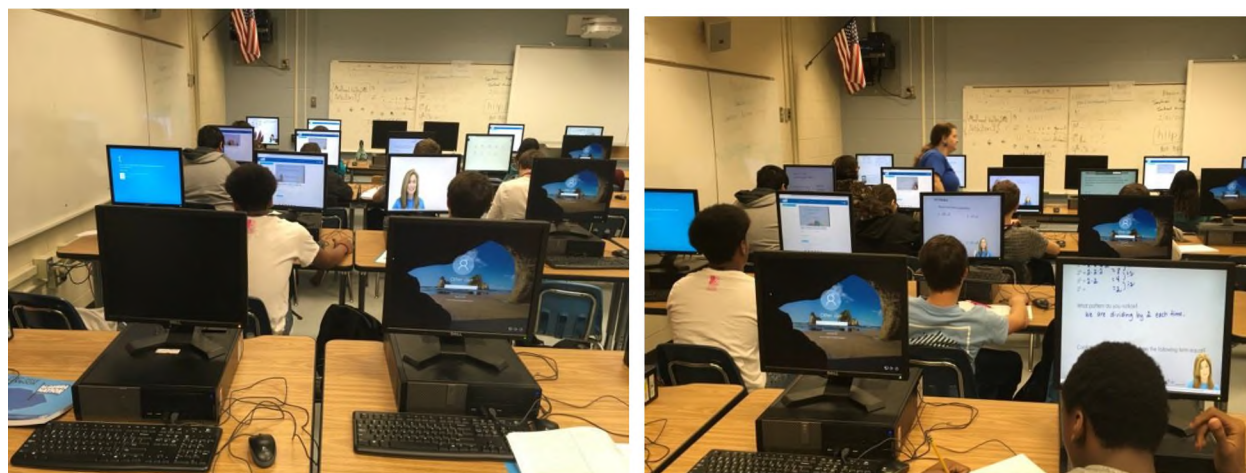
The class was held in the school computer lab and included 19 students. Ms. Gregory scheduled the class in the computer lab to allow her students to access Algebra Nation resources and work on individual needs. She is able to schedule the lab for her class one every two weeks. She indicated that me that during regular class time she does not make use of Algebra Nation materials because she is not able to individualize assignments and does not see value in using the materials as part of group instruction. She regrets not having technology available for each student and offered to visit Ms. Jenkins' class that has computers for all in the room.

As students walked in, Ms. Gregory handed out Algebra Nation workbooks to each student. She asked students to log into the district portal. She encouraged them to use the Firefox browser and not Internet Explorer is the program had been locking up in the latter browser.

The login process took between 5 and 8 minutes. Students were instructed to go to sections where each had left off and use workbooks to monitor where they are. Ms. Gregory suggested using video tutor Amy for new material as she was the most thorough and perhaps another tutor if the material was already familiar. Some students had headphones, but those without used the volume at low volume.



Once she finished helping a few students who experienced log in problems, Ms. Gregory addressed those students with algebra content questions. Some raised the hands, and others were helped based on what she noticed from their screens and workbook writing. The class was working on Section 1 of the Workbook about algebraic expressions as well as radical numbers. Ms. Gregory explained that she is using this time to review concepts that student had seen in Foundations of Algebra the previous year.



All students were engaged with the Algebra Nation materials and on-task throughout the class period. Some seemed to be copying writing they saw on the video into the workbook while others seemed to be more thoughtful about what they were hearing and writing. Three students are English Language Learners but their command of English was sufficiently strong to allow them to use the English tutors and not Spanish.

Ms. Gregory indicated to me that she finds the Algebra Nation resources to be helpful but is frustrated with the limited access because of student technology access. She doubted that Algebra Nation use would have an impact on the end-of-course test scores for this class because of the limited use.

When the bell rang, students quickly logged out, returned their workbooks, and left the room.

11:05 to 11:20 am Dana Jenkins Study Hall

Ms. Jenkins teaches a study hall in which students can work on any academic course work from classes in which they are enrolled. About one-third were working on Algebra Nation.

Ms. Jenkins makes regular use of Algebra Nation for her two Algebra 1 CP classes taught during other times of the day. She indicated that she liked how using Algebra Nation videos with the workbooks helped students with what she called “note taking” which was writing into the workbook the algebra ideas explained on the videos. She has been making extensive use of the On Ramp and was eager to have all her student reach level 5. She felt the recently announced end-of-course test Boot Camp would be helpful in preparing students for the end-of-course test. She also indicated that the motivation to earn Karma Points through Wall postings was helping

students. Because a student at the school won a prize for the most Karma Points earlier in the year, other students seemed motivated to compete and win as well.

This is Ms. Jenkins' last week teaching before she takes maternity leave and she expressed her appreciation for having the Algebra Nation materials. She has prepared lesson plans for a substitute teacher is not qualified to teach mathematics but who will use the plans tied directly to Algebra Nation videos and other resources to all the students to continue to learn algebra over the remainder of the year. Ms. Jenkins was confident that the students will be successful without her.

MCOP² Form for Sharon Gregory

Sharon Gregory Intermediate Algebra Midland Valley HS
Mathematics Classroom Observation Protocol for Practices (MCOP²) Mar 14, 2018

1) Students engaged in exploration/investigation/problem solving.

SE	Description	Comments
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.	All students engaged with Alg. Nation instruction
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.	
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.	
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.	

2) Students used a variety of means (models, drawings, graphs, concrete materials, manipulatives, etc.) to represent concepts.

SE	Description	Comments
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.	all symbols
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.	
1	The students manipulated or generated one representation of a concept.	
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.	

3) Students were engaged in mathematical activities.

SE	Description	Comments
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)	
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.	
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.	
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.	

4) Students critically assessed mathematical strategies.

SE	TF	Description	Comments
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	Strategies presented or videos were not discussed
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.	
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description	Comments
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	<p>About half of students were reasoning & thinking instead of copying</p>
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.	
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.	

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description	Comments
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.	
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.	

7) The lesson promoted modeling with mathematics.

TF	Description	Comments
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).	
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); <u>or</u> modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.	
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.	
0	The lesson does not include any modeling with mathematics.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description	Comments
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.	
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.	
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.	
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.	

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description	Comments
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.	patterns provided from videos
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; <u>or</u> more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; <u>or</u> a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.	

10) The lesson promoted precision of mathematical language.

TF	Description	Comments
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.	
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.	
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.	
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.	

11) The teacher's talk encouraged student thinking.

TF	Description	Comments
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis , synthesis, and evaluation. Analysis : examines/interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.	Mostly from video files
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.	
1	Teacher talk consists of " lower order " knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.	
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.	

12) There were a high proportion of students talking related to mathematics.

SE	Description	Comments
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	a few asked questions
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
1	Less than half of the students were talking related to the mathematics of the lesson.	
0	No students talked related to the mathematics of the lesson.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments

14) In general, the teacher provided wait-time.

SE	TF	Description
3	3	The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2	2	The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1	1	The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0	0	The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description
3	3	Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2	2	Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1	1	The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0	0	No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments
all individual work on computers I with AN videos

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

TF	Description
3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task versus conceptual knowledge of the content.
0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments

Additional Notes: Preservice or Inservice, Live or Video, #Students, Grade Level, topic/subject, date, other demographics, school, etc.

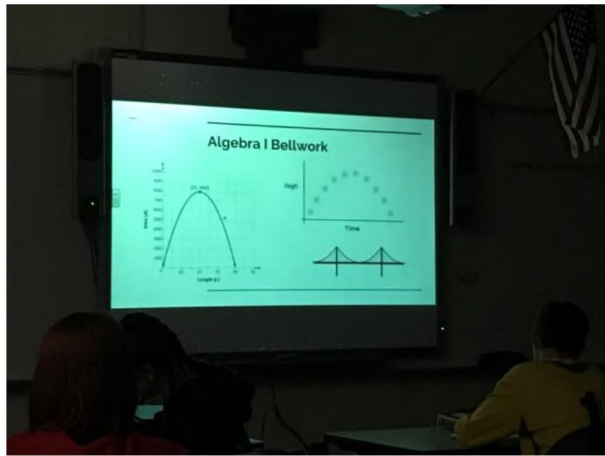
The purpose of this lesson was to reinforce knowledge & skills learned in a prior algebra course. The teacher was using the computer lab to review with individualized assignments. The class period was cut short by an unexpected schedule change.

Algebra 1 Observation for Algebra Nation

Jennifer Porter
E.L. Wright Middle School
March 28, 2018

9:48 to 10:53 a.m. Grade 7 Algebra 1

As students walk in there were instructions on the board. There were 13 students in today's class with 3 missing because of band. When the bell rings Mrs. Porter reviewed the material on the board. They are assigned a video from Algebra Nation to watch for homework. She then asked students to share something good that is happening in their lives.

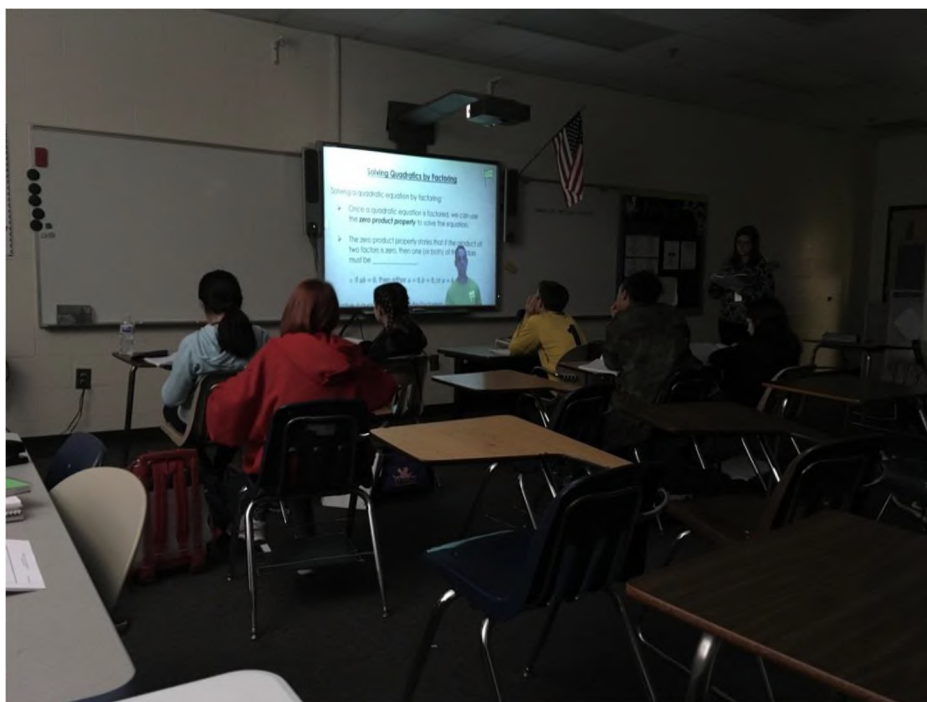


She projected three quadratic function graphs on board and asked students to write something about each in their notebooks.

Students spent about 3 minutes writing individually. Mrs. Porter stated her goal of connecting the graphs to what was learned in the Algebra Nation video watched. She drew from the students the reasons why they feel the graphs represent a parabola contrasting why the graphs are not linear and why the curves are parabolic. She emphasized precise vocabulary and also contrasted rate of change for linear versus quadratic functions with a student mentioning that linear functions have a constant rate of change.

Mrs. Porter introduced the process of finding solutions to quadratic equations using one of the graphs. She emphasized how some of the graphs represent real life situations such as a ball being tossed as an example. She stated that today's lesson goal is to take real world examples with equations and find solutions. She indicated that terms like solutions, zeroes, x-solutions, or roots have similar meanings.

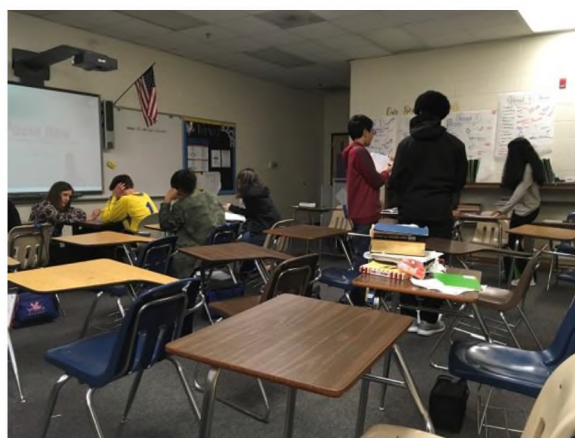
Mrs. Porter reiterated the plan and points students to p. 134 of the Algebra Nation workbook. She indicated that she will co teach with Zach, the Algebra Nation video Study Expert on the quadratics solutions lesson.



Mrs. Porter started the video lesson then paused after one minute to ask questions about the zero product property explained on the video by Zach. As a problem was posed on the video, she paused to explain factoring method that was used is different from what she had taught in the past. Mrs. Porter used a factor diamond and the video uses an area model method. She continued to run the video and paused to address the concept and ask questions about the first example.

The second example used the area model for factoring and Mrs. Porter contrasted the diamond method to the area model. She adeptly paused the video and discussed the two methods used. She asked students individually to solve the final two linear equations of the factored quadratic for the two solutions, then let Zach finish the problem on the video so students could compare their answers.

Zach posed a third example and Mrs. Porter indicated that students could use whichever method they preferred to solve the quadratic equation. Students seemed to prefer the diamond method. Mrs. Porter demonstrated both methods on the board.



Mrs. Porter next assigned a Best the Test problem from p. 126 of the Algebra Nation workbook where students were to find an error that Tyra made in solving a quadratic equation. She suggested that students solve the equation using their own method if they couldn't find the error that Tyra made. After about 5 minutes she asked students to share what they found with a neighbor. After 3 minutes of sharing she had students return to their seats and reviewed the errors using the video of Zach explaining.

Mrs. Porter next wanted them to apply the solution method for quadratics to real world situations involving a ball being thrown. She emphasized the importance of being able to apply algebra concepts they were learning to solve problems encountered in life. She made an effort to demonstrate how the graph over time is different from the image of the ball moving up and down anticipating a problem students were likely to have. She asked students to either individually or with a partner answer the question of how long it will take for the ball to hit the ground. Students worked on the problem, about half in pairs and half individually. They found the two solutions to the equation, one a negative number, and Mrs. Porter helped them determine that $t = 3$ was the time elapsed for the ball to hit the ground.

When the bell rang Mrs. Porter reminded students to watch the assigned video for homework and that what they learned on the video would be discussed in the next day's class.

12:30 to 1:20 Post Observation Conference

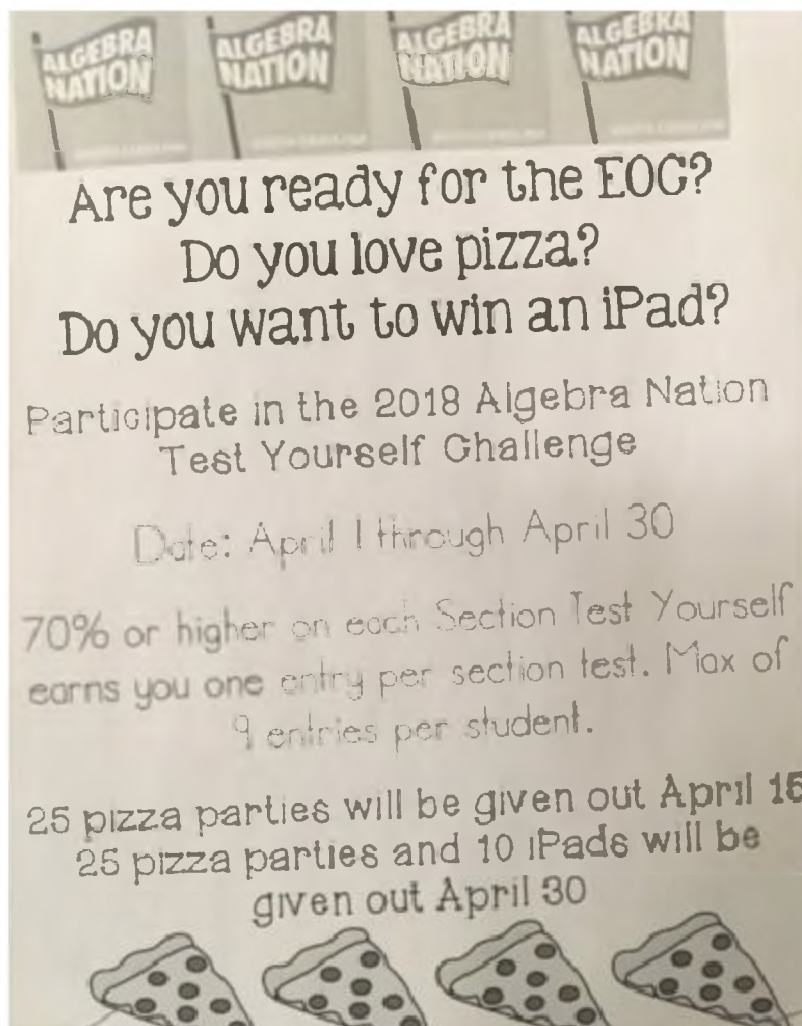
During Mrs. Porter's planning period, she and I discussed her use of Algebra Nation resources and their impact on her students. She indicated that she had used Algebra Nation two years earlier when she was a teacher in Florida. From that experience, she knew the resources had a positive impact on test score and student learning.

Mrs. Porter indicated that her students are sometimes assigned videos to be viewed outside of class and sometimes she uses the videos in class, co-teaching with the Study Expert, as she did in the lesson I observed. She determines based on content whether to "flip the class" and have the students' watch the lesson at home or whether to use the video as part of in-class teaching. If the material is familiar to students, she prefers to use the flipped class approach but for more challenging material, she prefers to co-teach.

Mrs. Porter mentioned that she values being able to share different teaching styles and mathematical perspectives with her students. She felt she had grown as a teacher through the Algebra Nation use of the area model for factoring as well as other teaching methods she experiences through the videos. She also indicated that starting in Florida, using Algebra Nation had helped her give more attention to students' conceptual understanding and moved her away from teaching procedures almost exclusively. She appreciates the inclusion of real world situations tied to problems.

Mrs. Porter uses many of the resources in the Teacher Area. She cited the value of the Independent Practice worksheets as well as the Mini Assessments. She has increased her use of

Test Yourself! Practice with the approach of the administration of the end-of-course Algebra 1 test. The poster below was at the front of her classroom. Her students seem to make use of the Algebra Wall and she indicated that she has found it very beneficial as she is not always available to answer questions or help.



Mrs. Porter indicated that she has grown to depend heavily on the instructional materials provided through Algebra Nation. She felt her students and she would be negatively impacted if she was no longer able to use the resources she has come to value.

MCOP² Form for Jennifer Porter

Jennifer Porter / EL Wright Middle / Alg 1 Grade 7 / March 28, 2018

Mathematics Classroom Observation Protocol for Practices (MCOP²)

1) Students engaged in exploration/investigation/problem solving.

SE	Description	Comments
3	Students regularly engaged in exploration, investigation, or problem solving. Over the course of the lesson, the majority of the students engaged in exploration/investigation/problem solving.	All students investigate solving methods on solved problem about half the way.
2	Students sometimes engaged in exploration, investigation, or problem solving. Several students engaged in problem solving, but not the majority of the class.	
1	Students seldom engaged in exploration, investigation, or problem solving. This tended to be limited to one or a few students engaged in problem solving while other students watched but did not actively participate.	
0	Students did not engage in exploration, investigation, or problem solving. There were either no instances of investigation or problem solving, or the instances were carried out by the teacher without active participation by any students.	

2) Students used a variety of means [models, drawings, graphs, concrete materials, manipulatives, etc.] to represent concepts.

SE	Description	Comments
3	The students manipulated or generated two or more representations to represent the same concept, and the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were explicitly discussed by the teacher or students, as appropriate.	symbolic & graphical representations were both addressed
2	The students manipulated or generated two or more representations to represent the same concept, but the connections across the various representations, relationships of the representations to the underlying concept, and applicability or the efficiency of the representations were not explicitly discussed by the teacher or students.	
1	The students manipulated or generated one representation of a concept.	
0	There were either no representations included in the lesson, or representations were included but were exclusively manipulated and used by the teacher. If the students only watched the teacher manipulate the representation and did not interact with a representation themselves, it should be scored a 0.	

3) Students were engaged in mathematical activities.

SE	Description	Comments
3	Most of the students spend two-thirds or more of the lesson engaged in mathematical activity at the appropriate level for the class. It does not matter if it is one prolonged activity or several shorter activities. (Note that listening and taking notes does not qualify as a mathematical activity unless the students are filling in the notes and interacting with the lesson mathematically.)	All students were engaged in several math activities
2	Most of the students spend more than one-quarter but less than two-thirds of the lesson engaged in appropriate level mathematical activity. It does not matter if it is one prolonged activity or several shorter activities.	
1	Most of the students spend less than one-quarter of the lesson engaged in appropriate level mathematical activity. There is at least one instance of students' mathematical engagement.	
0	Most of the students are not engaged in appropriate level mathematical activity. This could be because they are never asked to engage in any activity and spend the lesson listening to the teacher and/or copying notes, or it could be because the activity they are engaged in is not mathematical – such as a coloring activity.	

4) Students critically assessed mathematical strategies.

SE	TF	Description	Comments
3	3	More than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	Students assessed different methods for solving. Teacher asked for vote on method used.
2	2	At least two but less than half of the students critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher.	
1	1	An individual student critically assessed mathematical strategies. This could have happened in a variety of scenarios, including in the context of partner work, small group work, or a student making a comment during direct instruction or individually to the teacher. The critical assessment was limited to one student.	
0	0	Students did not critically assess mathematical strategies. This could happen for one of three reasons: 1) No strategies were used during the lesson; 2) Strategies were used but were not discussed critically. For example, the strategy may have been discussed in terms of how it was used on the specific problem, but its use was not discussed more generally; 3) Strategies were discussed critically by the teacher but this amounted to the teacher telling the students about the strategy(ies), and students did not actively participate.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

5) Students persevered in problem solving.

SE	Description	Comments
3	Students exhibited a strong amount of perseverance in problem solving. The majority of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), the majority of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	Students persevered to solve 2 to find errors in methods
2	Students exhibited some perseverance in problem solving. Half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem.	
1	Students exhibited minimal perseverance in problem solving. At least one student but less than half of students looked for entry points and solution paths, monitored and evaluated progress, and changed course if necessary. When confronted with an obstacle (such as how to begin or what to do next), at least one student but less than half of students continued to use resources (physical tools as well as mental reasoning) to continue to work on the problem. There must be a road block to score above a 0.	
0	Students did not persevere in problem solving. This could be because there was no student problem solving in the lesson, or because when presented with a problem solving situation no students persevered. That is to say, all students either could not figure out how to get started on a problem, or when they confronted an obstacle in their strategy they stopped working.	

6) The lesson involved fundamental concepts of the subject to promote relational/conceptual understanding.

TF	Description	Comments
3	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, and the teacher/lesson uses these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	Mrs Parker explained conceptual understanding about solving quadratic equation
2	The lesson includes fundamental concepts or critical areas of the course, as described by the appropriate standards, but the teacher/lesson misses several opportunities to use these concepts to build relational/conceptual understanding of the students with a focus on the "why" behind any procedures included.	
1	The lesson mentions some fundamental concepts of mathematics, but does not use these concepts to develop the relational/conceptual understanding of the students. For example, in a lesson on the slope of the line, the teacher mentions that it is related to ratios, but does not help the students to understand how it is related and how that can help them to better understand the concept of slope.	
0	The lesson consists of several mathematical problems with no guidance to make connections with any of the fundamental mathematical concepts. This usually occurs with a teacher focusing on procedure of solving certain types of problems without the students understanding the "why" behind the procedures.	

7) The lesson promoted modeling with mathematics.

TF	Description	Comments
3	Modeling (using a mathematical model to describe a real-world situation) is an integral component of the lesson with students engaged in the modeling cycle (as described in the Common Core State Standards).	Modeling was added in our bell toss problem
2	Modeling is a major component, but the modeling has been turned into a procedure (i.e. a group of word problems that all follow the same form and the teacher has guided the students to find the key pieces of information and how to plug them into a procedure.); or modeling is not a major component, but the students engage in a modeling activity that fits within the corresponding standard of mathematical practice.	
1	The teacher describes some type of mathematical model to describe real-world situations, but the students do not engage in activities related to using mathematical models.	
0	The lesson does not include any modeling with mathematics.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

8) The lesson provided opportunities to examine mathematical structure. (symbolic notation, patterns, generalizations, conjectures, etc.)

TF	Description	Comments
3	The students have a sufficient amount of time and opportunity to look for and make use of mathematical structure or patterns.	Teacher address: Structure of quadratic factoring using generic Test even & odd over model.
2	Students are given some time to examine mathematical structure, but are not allowed adequate time or are given too much scaffolding so that they cannot fully understand the generalization.	
1	Students are shown generalizations involving mathematical structure, but have little opportunity to discover these generalizations themselves or adequate time to understand the generalization.	
0	Students are given no opportunities to explore or understand the mathematical structure of a situation.	

9) The lesson included tasks that have multiple paths to a solution or multiple solutions.

TF	Description	Comments
3	A lesson which includes several tasks throughout; or a single task that takes up a large portion of the lesson; with multiple solutions and/or multiple paths to a solution and which increases the cognitive level of the task for different students.	Task started with standard questions Model to show complex then finish on application
2	Multiple solutions and/or multiple paths to a solution are a significant part of the lesson, but are not the primary focus, or are not explicitly encouraged; <u>or</u> more than one task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
1	Multiple solutions and/or multiple paths minimally occur, and are not explicitly encouraged; <u>or</u> a single task has multiple solutions and/or multiple paths to a solution that are explicitly encouraged.	
0	A lesson which focuses on a single procedure to solve certain types of problems and/or strongly discourages students from trying different techniques.	

10) The lesson promoted precision of mathematical language.

TF	Description	Comments
3	The teacher "attends to precision" in regards to communication during the lesson. The students also "attend to precision" in communication, or the teacher guides students to modify or adapt non-precise communication to improve precision.	Mrs Parker showed vocabulary & was consistent in naming
2	The teachers "attends to precision" in all communication during the lesson, but the students are not always required to also do so.	
1	The teacher makes a few incorrect statements or is sloppy about mathematical language, but generally uses correct mathematical terms.	
0	The teacher makes repeated incorrect statements or incorrect names for mathematical objects instead of their accepted mathematical names.	

11) The teacher's talk encouraged student thinking.

TF	Description	Comments
3	The teacher's talk focused on high levels of mathematical thinking. The teacher may ask lower level questions within the lesson, but this is not the focus of the practice. There are three possibilities for high levels of thinking: analysis, synthesis, and evaluation. Analysis : examines/ interprets the pattern, order or relationship of the mathematics; parts of the form of thinking. Synthesis : requires original, creative thinking. Evaluation : makes a judgment of good or bad, right or wrong, according to the standards he/she values.	High levels of thinking were used to evaluate solution methods
2	The teacher's talk focused on mid-levels of mathematical thinking. Interpretation : discovers relationships among facts, generalizations, definitions, values and skills. Application : requires identification and selection and use of appropriate generalizations and skills.	
1	Teacher talk consists of "lower order" knowledge based questions and responses focusing on recall of facts. Memory : recalls or memorizes information. Translation : changes information into a different symbolic form or situation.	
0	Any questions/ responses of the teacher related to mathematical ideas were rhetorical in that there was no expectation of a response from the students.	

12) There were a high proportion of students talking related to mathematics.

SE	Description	Comments
3	More than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	All students talked at expectation of group pair work.
2	More than half, but less than three quarters of the students were talking related to the mathematics of the lesson at some point during the lesson.	
1	Less than half of the students were talking related to the mathematics of the lesson.	
0	No students talked related to the mathematics of the lesson.	

Mathematics Classroom Observation Protocol for Practices (MCOP²)

13) There was a climate of respect for what others had to say.

SE	TF	Description
3	3	Many students are sharing, questioning, and commenting during the lesson, including their struggles. Students are also listening (active), clarifying, and recognizing the ideas of others.
2	2	The environment is such that some students are sharing, questioning, and commenting during the lesson, including their struggles. Most students listen.
1	1	Only a few share as called on by the teacher. The climate supports those who understand or who behave appropriately. Or Some students are sharing, questioning, or commenting during the lesson, but most students are actively listening to the communication.
0	0	No students shared ideas.

Comments
Mrs Porter question most students & elicited information about their thinking

14) In general, the teacher provided wait-time.

SE	TF	Description
3	3	The teacher frequently provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
2	2	The teacher sometimes provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
1	1	The teacher rarely provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.
0	0	The teacher never provided an ample amount of "think time" for the depth and complexity of a task or question posed by either the teacher or a student.

Comments
Several points in the lesson required students to think & work silently

15) Students were involved in the communication of their ideas to others (peer-to-peer).

SE	TF	Description
3	3	Considerable time (more than half) was spent with peer to peer dialog (pairs, groups, whole class) related to the communication of ideas, strategies and solution.
2	2	Some class time (less than half, but more than just a few minutes) was devoted to peer to peer (pairs, groups, whole class) conversations related to the mathematics.
1	1	The lesson was primarily teacher directed and little opportunities were available for peer to peer (pairs, groups, whole class) conversations. A few instances developed where this occurred during the lesson but only lasted less than 5 minutes.
0	0	No peer to peer (pairs, groups, whole class) conversations occurred during the lesson.

Comments
Students were paired to compare results of the Boat fire test problem

16) The teacher uses student questions/comments to enhance conceptual mathematical understanding.

TF	Description
3	The teacher frequently uses student questions/ comments to coach students, to facilitate conceptual understanding, and boost the conversation. The teacher sequences the student responses that will be displayed in an intentional order, and/or connects different students' responses to key mathematical ideas.
2	The teacher sometimes uses student questions/ comments to enhance conceptual understanding.
1	The teacher rarely uses student questions/ comments to enhance conceptual mathematical understanding. The focus is more on procedural knowledge of the task versus conceptual knowledge of the content.
0	The teacher never uses student questions/ comments to enhance conceptual mathematical understanding.

Comments
Mrs Porter consistently sought student input to promote conceptual understanding

Additional Notes: Preservice or Inservice, Live or Video, #Students, Grade Level, topic/subject, date, other demographics, school, etc.

Mrs Porter co-taught second of the lesson contact with Algebra Study Expert Zac allay her to monitor student understanding & employ different methods for solving quadratic equations. She used a real world example for the Algebra 2 problem to introduce modeling.

EDUCATION OVERSIGHT COMMITTEE

Date: February 11, 2019

ITEM

eLearning Pilot Districts Project

PURPOSE/AUTHORITY

Proviso 1A.86. of the 2018-19 General Appropriation Act

The Education Oversight Committee shall be responsible for and have control over the construct and implementation of the pilot program for alternative methods of instruction for make-up days. For the current fiscal year, the Education Oversight Committee shall select school districts around the state for a pilot program to utilize alternative methods of instruction which may include, but are not limited to, online or virtual instruction for scheduled make up time. All make up time must reflect the number of hours of the make-up days the instruction will cover. All make up time must meet state requirements for elementary and secondary school days. The Education Oversight Committee shall provide guidelines to the selected school districts no later than August 1, 2018. All districts shall continue to report to the Department of Education all days missed, reasons for the absences, days made up, and now the alternative method of instruction used. The Education Oversight Committee shall work with the Educational Television Commission (ETV) and the State Library to utilize and coordinate available ETV and State Library resources and explore alternative means of delivery to districts that may lack proper access to online instruction.

The school districts shall report the following information to the Education Oversight Committee by April 1, 2019: method(s) of implementation utilized, advantages and disadvantages of the method(s) used, and any feedback received from parents or guardians.

The Education Oversight shall report those findings to the Chairman of the House Ways and Means Committee and the Chairman of the Senate Finance Committee by June 1, 2019.

CRITICAL FACTS

The report documents implementation of the proviso through December of 2018 and provides preliminary findings and recommendations.

TIMELINE/REVIEW PROCESS

August 6, 2018

September – December 2018

EOC approves five school districts to participate in the pilot

Monthly meetings held with pilot districts to share strategies for eLearning

ECONOMIC IMPACT FOR EOC

The EOC contracted with Dr. Lee M. D'Andrea to structure the pilot project, assist districts in implementation, and establish a working network among the districts along with SCETV and the SC State Library, as required by the Proviso.

ACTION REQUEST

☐ For approval

☒ For information

ACTION TAKEN

☐ Approved

☐ Not Approved

☐ Amended

☐ Action deferred (explain)

eLearning Pilot Districts Project

Initial Report to the
Education Oversight Committee
January 15, 2019

Prepared by Lee M. D'Andrea, Ph.D.

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• Feedback Results from Districts (Anderson 5, Kershaw, Spartanburg 1 and Pickens)	
• Sample Website Communication	https://www.kcsdschools.net/elearning

Introduction and Background

Pursuant to Proviso 1A.86 of the 2018-19 General Appropriation Act, the Education Oversight Committee (EOC) constructed and implemented a pilot program for alternative methods of instruction for make-up days. On August 6, 2018 the EOC selected five (5) school districts around the state (Anderson 5, Kershaw, Pickens, Spartanburg 1 and Spartanburg 7) for a pilot program to utilize alternative methods of instruction which may include, but are not limited to, online or virtual instruction for scheduled make up time. This preliminary report articulates information regarding the project implementation and results through December 31, 2018.

The selection process included an application which required the districts define the readiness of the district to implement an e-Learning day in lieu of face-to-face school day. The readiness factors were based on device distribution among students, teachers' familiarity and use of a learning management system, technology infrastructure and current status of instructional technology as a part of the overall learning process.

The EOC contracted with Dr. Lee M. D'Andrea to structure the pilot project, assist districts in implementation, establish a working network among the districts and SCETV and the SC State Library (pursuant to the Proviso). The pilot process, preliminary findings and recommendations are presented in this preliminary Executive Summary.

Implementation Process

Upon notification of award to serve as a pilot district, monthly meetings were scheduled September – December and a final meeting in March. January and February meetings are scheduled to be held in virtual environments. The topics for the fall meetings included:

1. district sharing of current instructional technology implementation status and device distribution implementation plans;
2. learning about additional resources at SCETV and SC State Library;
3. delivery of eLearning in compliance with IEPs and 504s;
4. communication strategies (with board members, parents, students, teachers and staff);
5. findings from the Mock or Practice days each district scheduled, and
6. collection of recommendations for future pilot districts.

Initial Findings

During the networking meetings, districts described the extensive instructional technology landscape they had created as a part of the overall teaching and learning environment in the district. The readiness to implement predicated the ability to offer the e-learning day to students and families as a strategy for continuing instruction without interruption. In each of the five pilot districts, instructional technology integration and 1:1 devices had been in existence for at least two years. The districts reported this amount of time was necessary to fully implement an effective learning management system, secure devices and establish practices for use both in school and at home. In addition, professional development was ongoing during the entire implementation process. Helping and supporting teachers on topics such as learning management use, instructional strategies and location of resources were scheduled in face-to-face meetings, summer seminars and webinars. Both the SC State Library and SCETV provided help to teachers in one or more of these deliveries.

The mock or practice days were positive learning experiences for the districts. Each district reported “small, but important details” related to communications with parents, student downloading assignments, software interfacing and log-ons, and a few teachers still lacking skill or commitment to implement technology in the learning environment. All districts reported the Mock or Practice days as an integral part of the process. But all five districts reiterated the desire for eLearning as an alternative to canceling school is really because the eLearning is an

operational part of their learning environments and this opportunity truthfully lessens interruptions in instruction. In fact, the districts reported the laser focus on being prepared for either Mock/Practice days as well as actual eLearning days strengthened the overall teaching and learning plans in their districts. This could only happen with a strong instructional technology foundation and high level of readiness in all stakeholders, including students with devices, teachers working in this instructional technology environment and administrators communicating clearly both internally and externally.

Actual eLearning days were used by four of the five districts during the fall and early winter. The reasons included flooding and rain associated with Hurricane Michael, snow and ice the week of December 10, 2018.

District	Day 1	Day 2	Day 3
Anderson Five	October 11	December 10	
Kershaw	January 7 (make-up)		
Pickens	December 10	December 11	
Spartanburg 1			
Spartanburg 7	December 10	December 11	

The overwhelming feedback was positive, and the best evidence is in the qualitative stories, either posted on social media sites or reported by local news outlets. In all pilots, information is also gathered to improve or correct the initiative. The constructive criticism from parents and teachers were used to make subsequent days better. The two most frequent improvement feedback to parents having to stay home from work (when work was not also closed) and time to complete lessons being too short or too long. Samples of these are in the links and/or websites below:

Spartanburg 7

<https://www.goupstate.com/news/20181210/e-learning-keeps-district-7-students-busy-on-snow-day>

<https://www.wyff4.com/article/upstate-school-district-uses-virtual-learning-during-winter-storm/25487369>

<https://www.facebook.com/SchoolDistrict7/> (see posting on December 10)

Pickens

<https://upstatetoday.com/2018/12/online-learning-an-answer-for-snow-days/>

Anderson 5

<https://www.wspa.com/news/anderson-5-holds-first-ever-e-learning-day-in-state/1520130625>

Kershaw

<http://www.chronicle-independent.com/archives/52043/>

eLearning days initially used were successful because of the significant amount of instructional technology existing in the districts, laser focus on preparation for continuing this learning environment without being in a traditional classroom, the resources, activities and lessons extended the existing lesson plans (and not arbitrary busy work) and the support and help that was available during the day (via phone, social media, text or email).

The districts that used eLearning days in the fall and early winter were asked to survey the teachers, the administrators the students and the parents using one question: Was the eLearning day a positive learning experience for you? The parents, teachers and administrators' results were overwhelmingly positive. Each district reported over ninety percent (90%) **Yes** in these three groups. The students reported a 65-75% positive response; however, the comments revealed that the students missed being with their friends and wanted a day off.

The pilot districts fully expect to use more eLearning days in January and February as these two months present the most snow and ice challenges for school attendance. The final report will share the findings for the additional (if any) days used for eLearning.

Early Recommendations Year Two eLearning

When asked if the districts would like for the opportunity to extend into 2019-2020, the resounding response was “Yes!” The pilot districts are so positive about the experience, they encourage a Year Two Pilot Cohort. The pilot districts worked, collaborated and shared: forms, communication strategies, how some issues were resolved and even readiness checklists. While different Learning Management Systems were used and different devices, the central focus of all the districts is quality, student-focused instruction. This common mission served as a strong bond for networking.

The five districts offered to read the second cohort applications (with identifying information redacted), score their readiness and applications. Once Cohort Two is chosen, the process for planning and implementing could be repeated, this time with the help and support of Cohort One.

Initial Conclusions

The General Assembly has supported pilot projects for decades. This reporter was professionally involved in implementing a Target 2000 grant in the early nineties. Pilot projects are, by design, an opportunity to innovative or solve a problem differently. And when the initial findings are positive, as is the case in this pilot project Year One, there may be a proclivity to move to scale too quickly. Clearly, these five districts had foundations in place on which to build this Pilot Project. Minus this level of readiness, the results may be very different and can be disastrous for everyone: students, policymakers, teachers, and communities. The General Assembly is strongly encouraged to continue the pilot project for at least one more year and perhaps two with a goal of having 25-33% of the districts engaged in what would be three cohorts.

Appendix

1A.86. of the 2018-19 General Appropriation Act

1A.86. (SDE-EIA: Digital Learning Plan) From funds administered by the K-12 Technology Committee, the following study committee is created to develop a Digital Learning Plan for the state's K-12 public education system. The goal of the Digital Learning Plan is to build upon the existing technology foundation of public schools and develop a coherent long-term strategy that sets directions and priorities, supports innovation, and provides resources to enable educators and students to benefit fully from digital-age teaching and learning. The Digital Learning Plan must provide recommendations for State actions that will guide and support K-12 schools in their transitions to digital-age education. The plan must be submitted to the General Assembly by January 1, 2019 and must address, at a minimum, the following issues for districts and schools: technology, infrastructure, and devices; human capacity; content instruction and assessment; security; regional and state support; policy and funding; local digital learning initiatives; and the use of alternative methods of instruction for scheduled make up time. The Digital Learning Plan must include timelines for implementation and cost projections beginning with the subsequent fiscal year. The study committee shall confer with other states and national experts on developing and implementing the Digital Learning Plan. Staff support shall be provided by the K-12 Technology Committee and agencies represented on the committee. The study committee shall be composed of the following members:

1. Executive Director of the Department of Administration, or his designee, who shall chair the study committee;
2. State Superintendent of Education, or his designee;
3. President of Educational Television Commission, or his designee;
4. Director of the State Library, or his designee;
5. Executive Director of the Education Oversight Committee, or his designee;
6. A representative of the private sector in the field of information technology appointed by the Chairman of the Senate Finance Committee;
7. A representative of the private sector in the field of information technology appointed by the Chairman of the House Ways and Means Committee;
8. One representative of an educator preparation program appointed by the State Board of Education;
9. One member of a local board of education who represents a local education agency that has successfully incorporated technology into its schools, who is appointed by the Education Oversight Committee;
10. One member of a local board of education who represents a local education agency that has limited access to technology, who is appointed by the Education Oversight Committee; and
11. One parent of a public school child appointed by the Education Oversight Committee.

The Education Oversight Committee shall be responsible for and have control over the construct and implementation of the pilot program for alternative methods of instruction for make-up days. For the current fiscal year, the Education Oversight Committee shall select school districts around the state for a pilot program to utilize alternative methods of instruction which may include, but are not limited to, online or virtual instruction for scheduled make up time. All make up time must reflect the number of hours of the make-up days the instruction will cover. All make up time must meet state requirements for elementary and secondary school days. The Education Oversight Committee shall provide guidelines to the selected school districts no later than August 1, 2018. All districts shall continue to report to the Department of Education all days missed, reasons for the absences, days made up, and now the alternative method of instruction used. The Education Oversight Committee shall work with the Educational Television Commission (ETV) and the State Library to utilize and coordinate available ETV and State Library resources and explore alternative means of delivery to districts that may lack proper access to online instruction.

The school districts shall report the following information to the Education Oversight Committee by April 1, 2019: method(s) of implementation utilized, advantages and disadvantages of the method(s) used, and any feedback received from parents or guardians.

The Education Oversight shall report those findings to the Chairman of the House Ways and Means Committee and the Chairman of the Senate Finance Committee by June 1, 2019.

Requirements for District Participation in eLearning Pilot

The superintendent of the school district and the chair of the board of trustees of the school district must certify to the Education Oversight Committee (EOC) that the district:

1. Meets the following minimum requirements to participate in the eLearning pilot to use eLearning to make up days missed due to inclement weather;
2. Agrees to provide data to the EOC or independent consultants hired by the EOC to evaluate implementation of the pilot. The data elements will be mutually agreed upon by the EOC and the pilot school districts; however, all data elements will be consistent across districts participating in the pilot; and
3. Agrees to facilitate the collection of online surveys as requested by the EOC to identify the successes and challenges of the pilot from the perspective of administrators, classroom teachers, students, and parents.

Approval of Districts for Participation in Pilot

The following are recommendations proposed by the Academic Standards and Assessments Subcommittee to the EOC staff for determining which districts participate in the pilot:

1. Only school districts that submit documentation certifying their ability to meet the following minimum requirements for participation will be considered for participation in the pilot.
2. No more than five districts will be approved for participation in the pilot in school year 2018-19 with districts that successfully complete the application process approved in the order received. The Subcommittee recommends that Anderson 5 be one of the five districts selected.
3. To the extent possible, the districts selected for the pilot will represent various sizes and geographic locations as well as alternative methods of instruction.
4. Pending final approval of the 2018-19 General Appropriation Act, the EOC will begin approval of districts for participation in the pilot beginning at its next regularly scheduled meeting.

Requirements	Certification or Information Needed from District
All Schools	<p>The district certifies that eLearning will be implemented for all schools in the district for one or more make-up days due to inclement weather.</p> <p style="text-align: center;"><input type="checkbox"/> YES <input type="checkbox"/> NO</p>
Instructional eLearning Days	<p>Section 59-1-425 of the South Carolina Code of Laws defines an instructional day and the requirements for make-up days. The law defines an instructional day for elementary students to be a minimum of 5.5 hours a day and for secondary students, 6.0 hours. Regulation 43-172 stipulates that “a pupil shall maintain membership in a minimum of 200 minutes of daily instruction or its equivalency for an annual accumulation of 36,000 minutes.”</p> <p>For any eLearning day used, the district certifies that each eLearning day will be 5.5 hours for students in kindergarten through grade 8 and 6.0 hours for students in grades 9-12, or a minimum of 200 minutes of daily instruction.</p> <p style="text-align: center;"><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>Will any eLearning days be used for specific built-in, make-up days like Martin Luther King Day, Presidents’ Day, Memorial Day, etc.?</p> <p style="text-align: center;"><input type="checkbox"/> YES <input type="checkbox"/> NO</p> <p>If Yes, which days? _____</p> <p>_____</p> <p>_____</p>
Number of eLearning Days	<p>Will the district limit the number of days of eLearning used for make-up days?</p> <p style="text-align: center;"><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If Yes . . .</p> <p>At a maximum, how many eLearning days could be used for make-up days? _____</p> <p>How will the district decide when/if eLearning days will occur?</p> <p>_____</p> <p>_____</p> <p>_____</p>

Requirements	Certification or Information Needed from District
Number of eLearning Days	How will the district notify parents and staff of implementation of an eLearning day? _____ _____ _____
eLearning Lessons	The district certifies that the eLearning lessons will address academic content or skills that would have been addressed if school had been in session in a traditional setting. <div style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div>
Access	<p>The district certifies that all students in the district have access to a device or an app to complete all eLearning lessons.</p> <div style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> <p>The district has assigned a digital device for all students in grades ____ through ____ which can be taken home daily. Please identify which devices have been assigned.</p> <p>_____</p> <p>All students in grades ____ through ____ have access to a digital device or app as documented by _____.</p> <p>Please provide specific information on apps to be used to complete eLearning lessons.</p>
Demonstrated Access to Students of eLearning lesson plans	<p>The district certifies that all students and teachers either have access to the Internet away from school buildings or have access to the eLearning assignments.</p> <div style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </div> <p>Please check <i>all</i> that apply below and provide any additional information on how the district will document access.</p> <p><input type="checkbox"/> The district will collect information from each teacher and parent/guardian documenting that the student has access to broadband Internet access at home and can download necessary apps.</p>

Requirements	Certification or Information Needed from District
Demonstrated Access to Students of eLearning lesson plans	<p>___ The district will collect information from each teacher and parent/guardian documenting what devices that teachers and students use to access the Internet outside of school.</p> <p>___ The district will work with teachers and parents to access discounted Internet access at home.</p> <p>___ The district will allow students to download eLearning assignments onto their devices.</p> <p>___ The district will allow students to work offline in a learning management system like Google Drive or allow for offline work.</p> <p>___ Other (Please specify)</p>
Notification	<p>The district certifies that students and parents/guardians will be informed of their eLearning targets for any day missed by inclement weather and made up with eLearning by 9 a.m.</p> <p style="text-align: center;">___Yes ___No</p>
Teacher Responsibility	<p>The district certifies that each classroom teacher of record will be responsible for uploading eLearning assignments and will have “office hours” to answer questions or assist parents/guardians and students in completing the virtual assignments.</p> <p style="text-align: center;">___Yes ___No</p> <p>Please provide information on the specific responsibilities of classroom teachers.</p>
Student Responsibility	<p>The district certifies that each student and parents/guardians have a clear understanding of the responsibility of students to complete the eLearning assignments.</p> <p style="text-align: center;">___Yes ___No</p>

Requirements	Certification or Information Needed from District
Student Responsibility	<p>Please respond to the following questions:</p> <p>How will the district communicate to students and parents? _____</p> <p>_____</p> <p>How many days will the student have to complete all make-up work? ____</p> <p>How will incomplete work be handled? _____</p> <p>_____</p> <p>_____</p>
Accommodations	<p>For students with disabilities who do not use an online platform for eLearning or for whom an online platform is not appropriate, teachers will provide parents/caregivers with appropriate educational materials and learning activities for student use.</p> <p>All students who have accommodations for instruction will be provided with or have access to those accommodations.</p> <p>For limited English proficient students, teachers will provide parents/caregivers appropriate educational materials and learning activities for student use per the Individual Learning Plan.</p> <p style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </p> <p>Please describe how the district will handle the above accommodations.</p> <p>_____</p> <p>_____</p> <p>_____</p>
Technical Support	<p>If students or parents have problems with accessing the eLearning assignments, how will the district respond to questions or concerns?</p> <p>_____</p> <p>_____</p> <p>_____</p>
Learning Management System	<p>The district has a learning management system that will post the assignments for eLearning day and will document that student assignments are collected and completed.</p> <p style="text-align: center;"> <input type="checkbox"/> Yes <input type="checkbox"/> No </p>

Requirements	Certification or Information Needed from District
Learning Management System	<p>Please identify the learning management system or systems to be used.</p> <p>Please denote grade levels served: _____</p>
Other Support	<p>Is the district interested in reviewing and using eLearning resources provided by Discus through the South Carolina State Library and/or SC ETV?</p> <p style="text-align: center;">___Yes ___No</p>
Reporting	<p>The district agrees to work with the Education Oversight Committee (EOC) and its staff to monitor and document the implementation and impact of eLearning for school make-up days. The reporting will include, but is not limited to: methods of implementation utilized; advantages and disadvantages; barriers and opportunities; and feedback from administrators, teachers, students, and parents/ guardians. The EOC will not assess the impact on student achievement.</p> <p style="text-align: center;">___Yes ___No</p>
Key Contact	<p>Please provide the name, title and contact information for the district employee who will be responsible for implementation of eLearning:</p> <p>Name: _____</p> <p>Title: _____</p> <p>Email: _____</p> <p>Phone Number: _____</p>

By signing below, _____ (*District name*) certifies that it meets the above requirements to participate in the eLearning pilot for school make-up days and that it will provide the necessary data and cooperation to the Education Oversight Committee (EOC) to monitor and evaluate implementation of the eLearning pilot for school make-up days.

Superintendent:	_____
Signature of Superintendent:	_____
Date:	_____
Chair of Board of Trustees	_____
Signature of Board Chair:	_____
Date:	_____

Agenda of Fall 2019 Meetings

SC Pilot Program – eLearning
Pilot Districts (5) Meeting
September 27, 2018

Host: Anderson School District 5 - Administrative Office

Agenda

- | | |
|-----------|---|
| 10:00 am | Welcome and Introductions <ul style="list-style-type: none">• Share for 5 minutes about your district plan |
| 10:30 am | Review of Proviso 1A.86, expectations and general reporting (handouts) – discuss infrastructure, data collection and design <ul style="list-style-type: none">• State time requirements (Update on meeting with Darlene Prevatt)• Days missed notice to SDE• Information to Melanie Barton and Lee D’Andrea (for reporting and answering questions)• Description of Reports for EOC and General Assembly |
| 11: 00 am | Overview of another state’s solution – Dr. Shane Robbins, Superintendent Kershaw (a pilot district) |
| 11:30 am | State Library resources overview |
| 12:00 am | Determine meeting dates:
October 22 - Kershaw - resources and communications
November <i>XX</i> - Pickens - professional development and trials
December <i>XX</i> - Spartanburg 1 - challenges seen and unseen; documentation
January - progress reporting and status updates
<i>January 15 – My status report to EOC and General Assembly</i>
February - progress reporting and status updates
March <i>XX</i> - Spartanburg 7 – review final report to the General Assembly |
| 12:20 pm | Questions, suggestions, ideas |
| 12:30 pm | Adjourn |

SC Pilot Program – eLearning
Pilot Districts (5) Meeting
October 22, 2018

Host: Kershaw County - Administrative Office

Agenda

- | | |
|-----------|---|
| 10:00 am | Welcome and Introductions and Announcements |
| 10:15 am | Update from Anderson 5 on eLearning Day <ul style="list-style-type: none">• What worked• What would you do differently |
| 10:30 am | SC ETV Resources Overview |
| 11: 00 am | Special Education and eLearning – guidance from SDE |
| 11:45 am | Practice Dates and Communications |
| 12:10 pm | Needed Information for Legislature |
| 12:25 pm | Questions, suggestions, ideas |
| 12:30 pm | Adjourn |

Next meeting dates:

- November 16 - Pickens - professional development and trials
- December 14 - Spartanburg 1 - challenges seen and unseen; documentation
- January - progress reporting and status updates
- January 15 – My status report to EOC and General Assembly
- February - progress reporting and status updates
- March 21 - Spartanburg 7 – review final report to the General Assembly

SC Pilot Program – eLearning
Pilot Districts (5) Meeting
November 16, 2018

Host: SDPC - Administrative Office – Technology Building
1348 Griffin Mill Road, Easley SC

Agenda

- 10:00 am Welcome and Introductions and Announcements
- 10:15 am Update from Districts on Mock/Practice Days
- What worked
 - What would you do differently
 - Specifically: professional development
 - Specifically: communications
- 10:45 am Overview of SDPC Network Plans and Implementation
- 11:10 am Review Outline of Report Due in January
- Early Grades Provisions
 - Survey to Pilot Districts
 - District Websites and Other Internal Resources
 - Recommendations for 2019-2020
- 11:50 am Update from EOC and General Assembly
- 12:10 pm Questions, suggestions, ideas
- 12:30 pm Adjourn

Next meeting dates:

December 14 - Spartanburg 1 - challenges seen and unseen; documentation
January - progress reporting and status updates
January 15 – My status report to EOC and General Assembly
February - progress reporting and status updates
March 21 - Spartanburg 7 – review final report to the General Assembly

SC Pilot Program – eLearning
Pilot Districts (5) Meeting
December 14, 2018

Host: Spartanburg One Administrative Office,
121 Wheeler St, Campobello, SC 29322

Agenda

- 10:00 am Welcome and Introductions and Announcements
- 10:15 am Update from Districts on eLearning Days
- What worked
 - What would you do differently
 - Communications strategies, successes and challenges
 - Any survey results
 - As a teacher, the eLearning day provides a positive instructional opportunity for students. yes or no
 - As a student, the eLearning day provides a good instructional opportunity for me to continue learning and working. yes or no
 - As a parent, the eLearning day provides instructional lessons/activities for my child. yes or no
 - As an administrator, the eLearning day provides consistent opportunities for student learning and work. yes or no
 - Unknown or unexpected issues
- 11:15 am Review documentation for Early Childhood grades (without 1:1 devices)
- 11:30 am Review Outline of Report Due in January (gather some data)
- Survey to Pilot Districts
 - District Websites Links and Other Internal Resources
 - Recommendations for 2019-2020
- 11:50 am Update from EOC and General Assembly (in person or via phone)
- 12:10 pm Questions, suggestions, ideas;
- 12:30 pm Adjourn

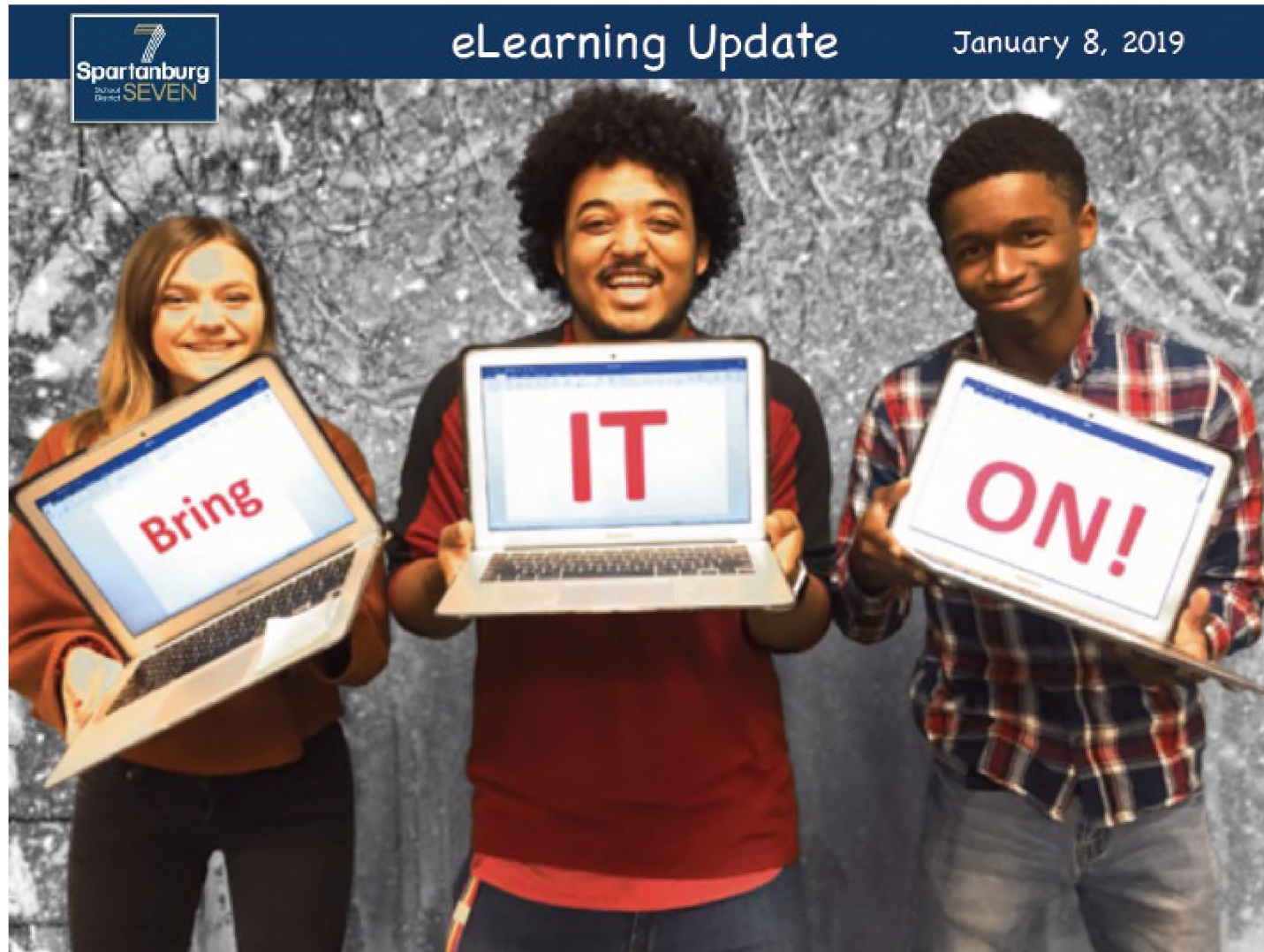
Next meeting dates:

January 15 – My status report to EOC and General Assembly

February - progress reporting and status updates

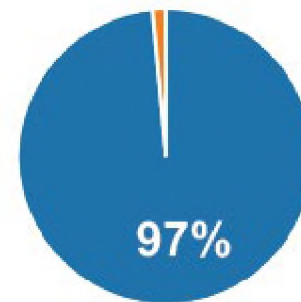
March 21 - Spartanburg 7 – review final report to the General Assembly

Sample Report to the local Board of Trustees (Spartanburg 7)
Feedback Results from Districts
(Anderson 5, Kershaw, Pickens and Spartanburg 1)



Teacher Feedback

eLearning days provided a positive instructional opportunity for my students.



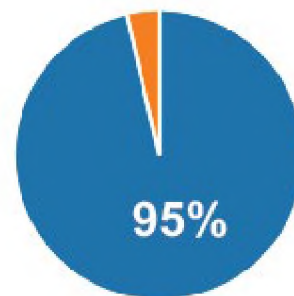
eLearning was a positive teaching opportunity for me.

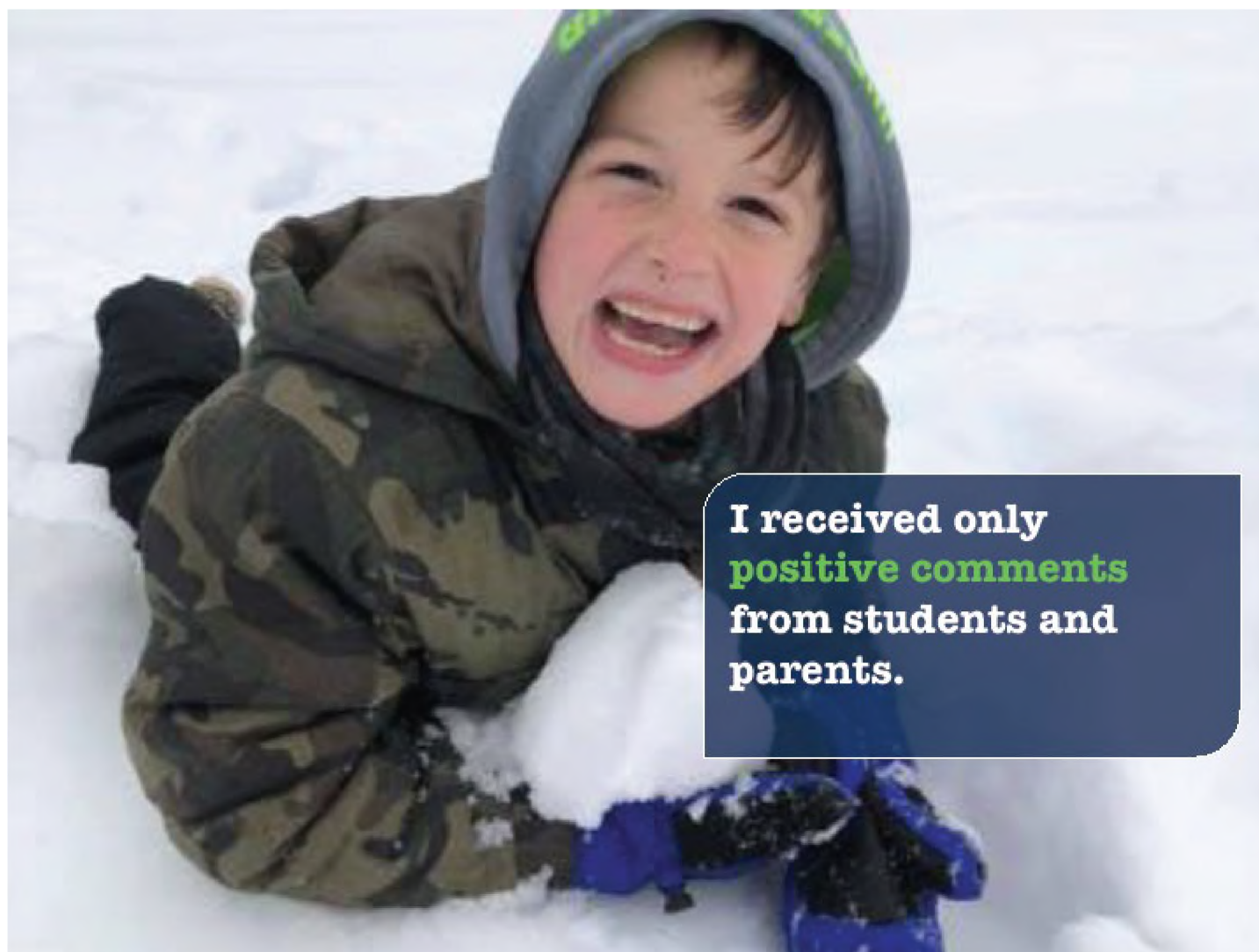
yes

368

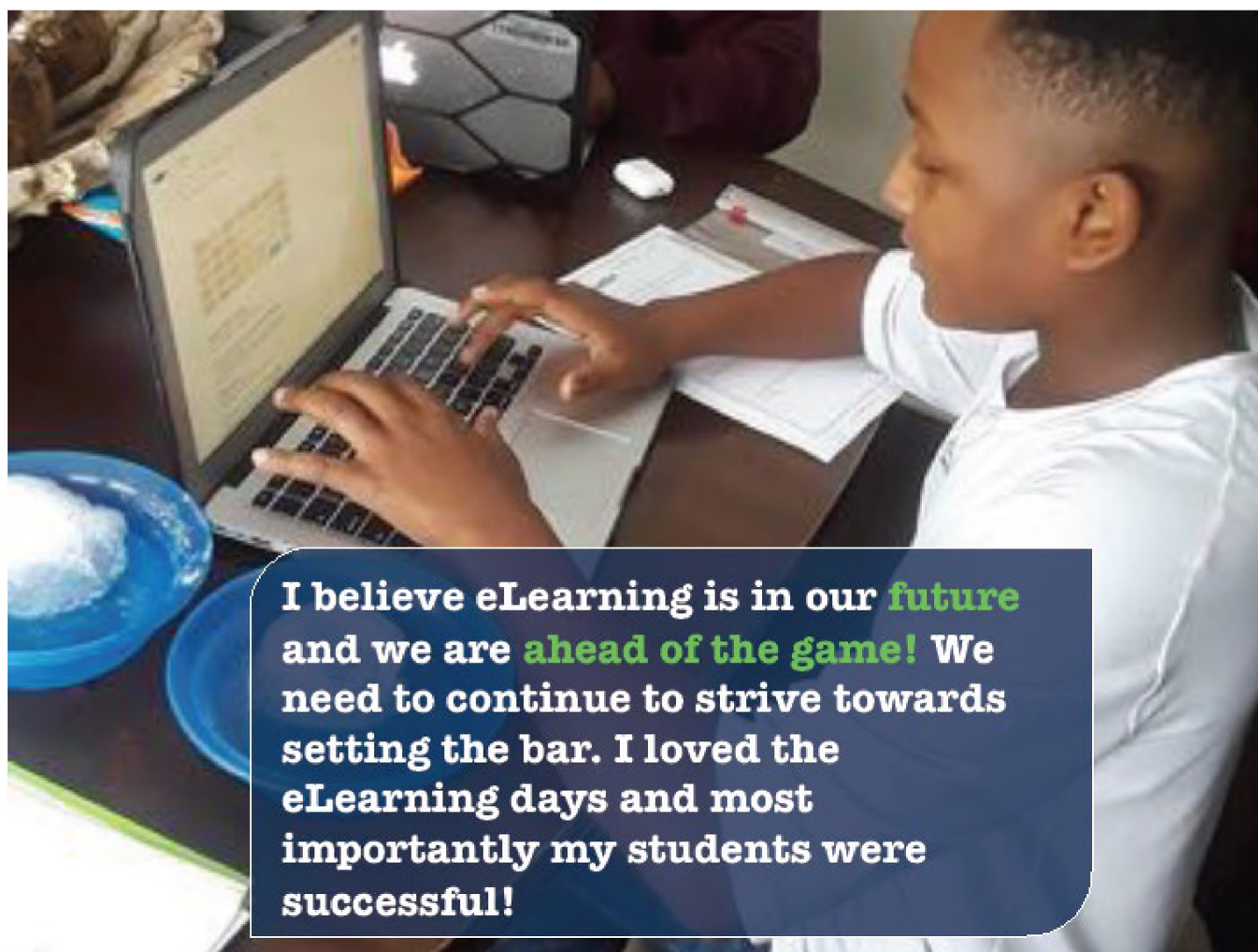
no

21





**I received only
positive comments
from students and
parents.**



I believe eLearning is in our **future and we are **ahead of the game!** We need to continue to strive towards setting the bar. I loved the eLearning days and most importantly my students were successful!**

I think this was a **huge success**. My students only had positive things to say about their experience with eLearning. I certainly hope this is something we can **continue to do** in the future.



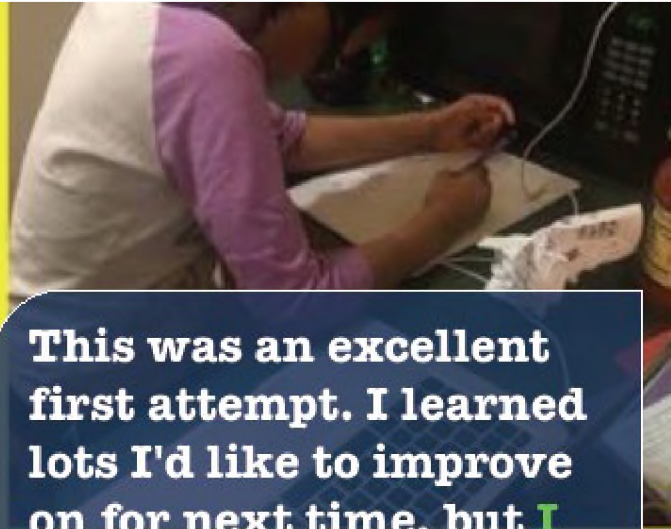
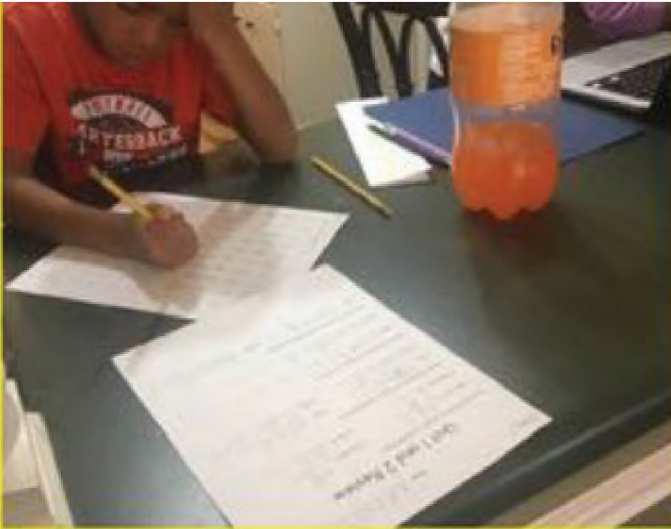


I was impressed with how many students turned in their work the first day. Definitely worth the extra planning!



The eLearning days are excellent opportunities for students to continue learning. Through this process, students communicated with me through email-asking questions, getting clarification, etc. It was a rewarding experience for me and the students. It was a perfect example of online learning.



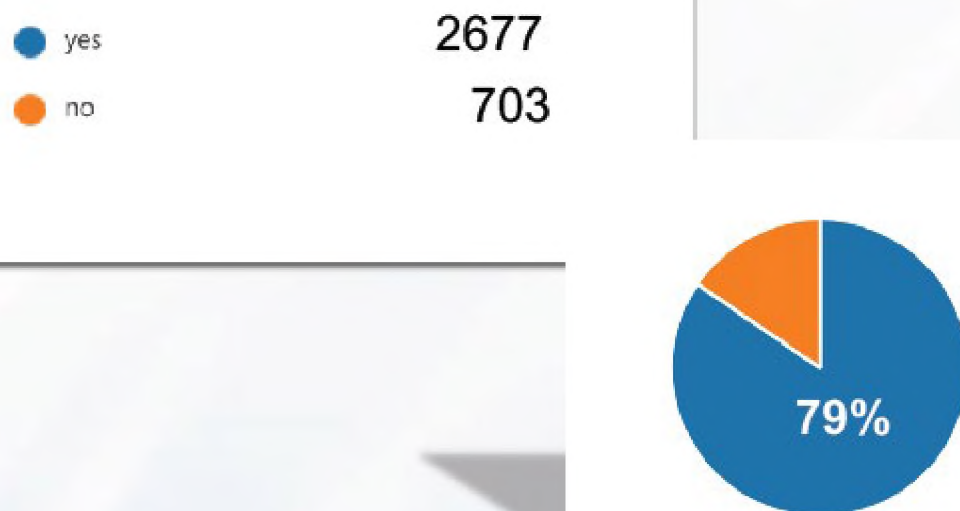


This was an excellent first attempt. I learned lots I'd like to improve on for next time, but **I feel real lucky** that we get to pilot this!

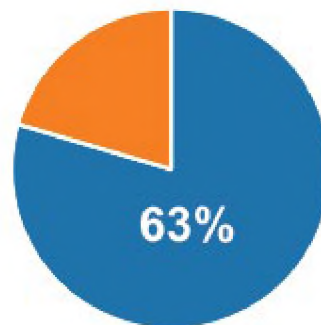



Student Feedback

The eLearning Days provided a good opportunity for me to continue learning and working.

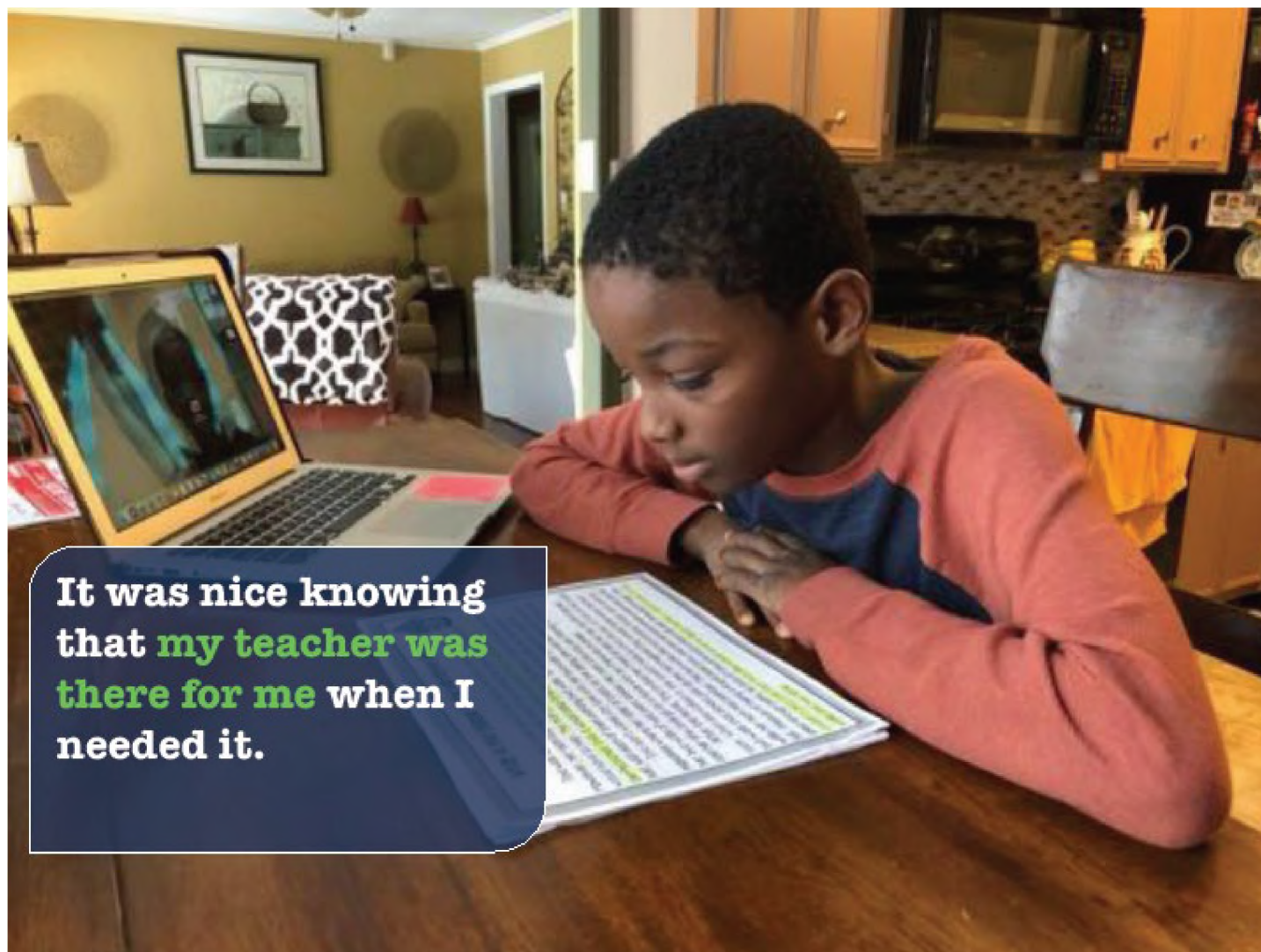


Overall, the eLearning Days were a good experience for me.

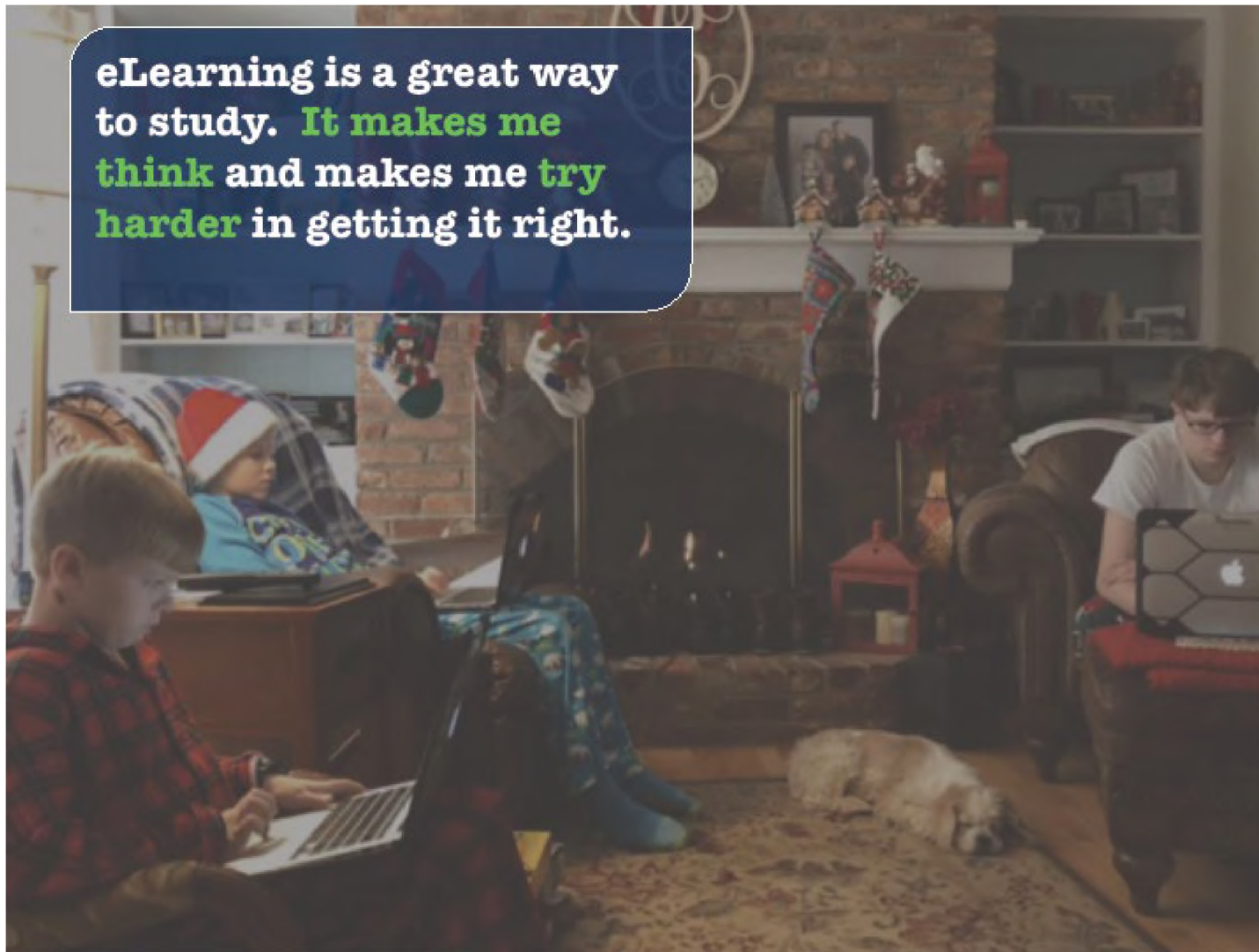


A young child is crouching in a snowy field. The child is wearing a bright blue snow suit with yellow accents, a red and white patterned knit hat with long orange tassels, and black and green snow boots. The child is looking directly at the camera with a slight smile. The background is a soft-focus view of a snowy landscape with some distant trees.

**I did my assignments
before I went to go play
in the snow. I did my
work outside so I went
back in cause it was
cold.**



eLearning is a great way to study. **It makes me think and makes me try harder** in getting it right.





eLearning was a
little challenging but
it was fun.

It is easy to get through if
you **just work like you are
at school.**





I had time to do everything and **help my little brother and sister** do their work also.

Parent Feedback

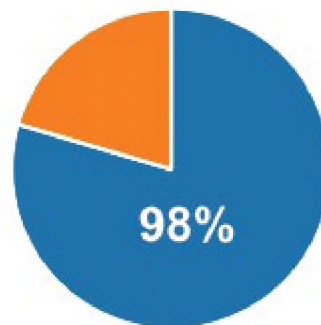
The eLearning days provided instructional lessons/activities for my child.

● yes

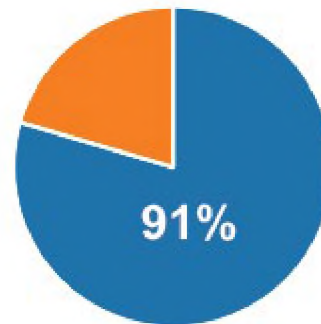
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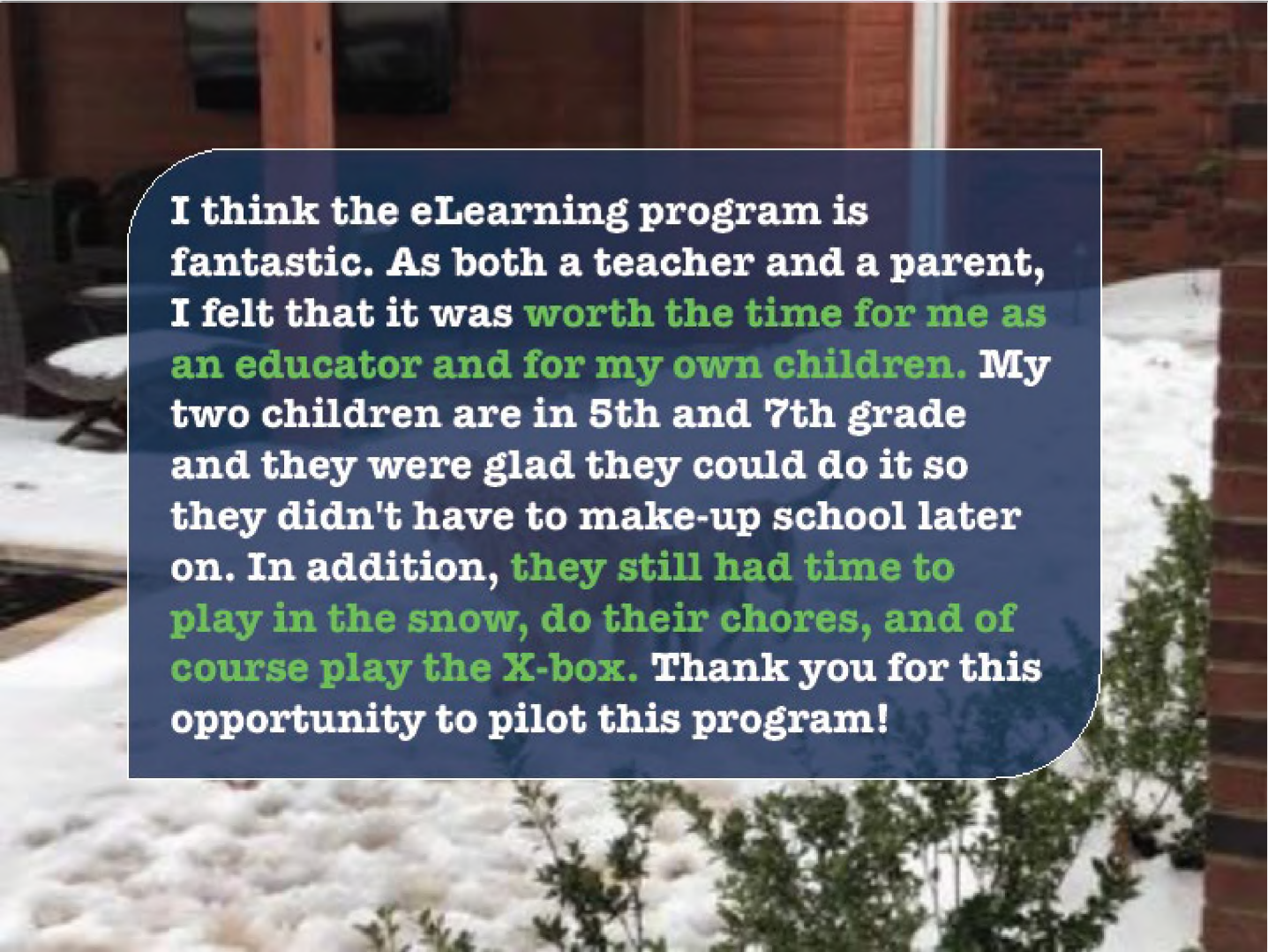
● no

15

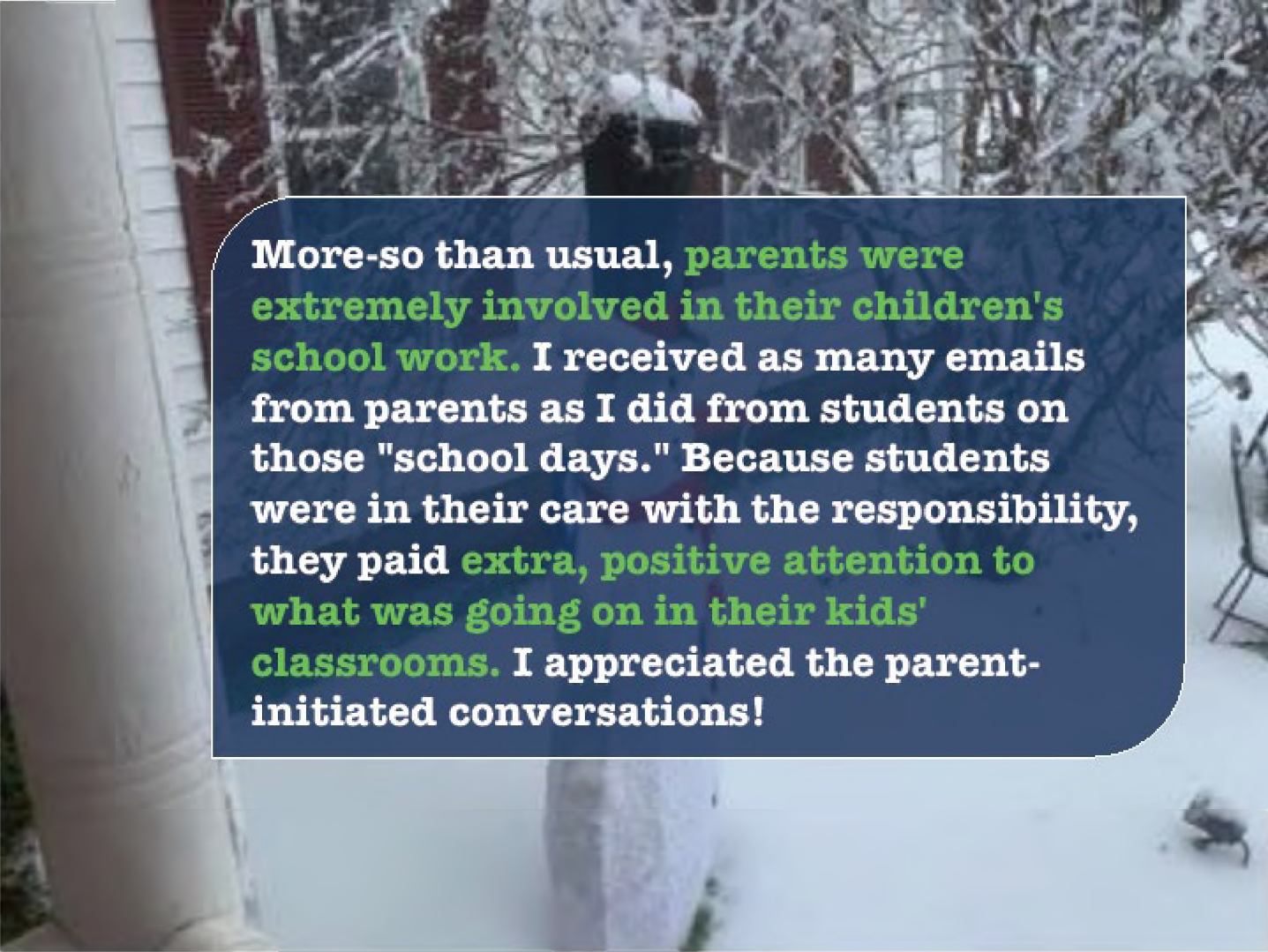


I though my child's eLearning assignments were worthwhile.





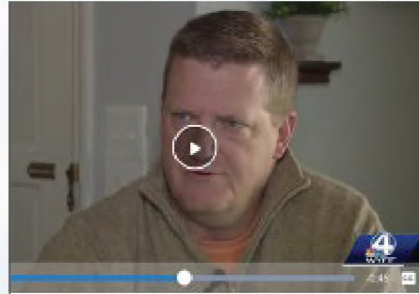
I think the eLearning program is fantastic. As both a teacher and a parent, I felt that it was **worth the time for me as an educator and for my own children.** My two children are in 5th and 7th grade and they were glad they could do it so they didn't have to make-up school later on. In addition, **they still had time to play in the snow, do their chores, and of course play the X-box.** Thank you for this opportunity to pilot this program!



More-so than usual, **parents were extremely involved in their children's school work.** I received as many emails from parents as I did from students on those "school days." Because students were in their care with the responsibility, they paid **extra, positive attention to what was going on in their kids' classrooms.** I appreciated the parent-initiated conversations!

eLearning Coverage

Upstate school district uses virtual learning during winter storm



GoUpstate.com

E-learning keeps District 7 students busy on snow day



HIDE CAPTION

Students with Spartanburg School District 7 continued their classwork during a snow day with a new e-learning program.



By CONOR HUGHES

Posted Dec 10, 2018 at 2:30 PM
Updated Dec 10, 2018 at 2:30 PM



While snow, sleet, and ice have closed offices and shut down roads in the Upstate, students with Spartanburg County School District 7 are still learning on with district-owned Chromebooks.



Moving long distances? Get a free quote from U-Haul now.

Tradition. Excellence. Innovation.

eLearning on Social Media



Spartanburg School District 7

December 6 at 9:21 AM · 🌐

We're SNOW Excited!

With forecasters calling for cold temps this weekend and the possibility of snow and ice, District 7 is ready to launch its first eLearning day.

Here's what you need to know.... [See More](#)



👍❤️👏 344

46 Comments · 185 Shares



Tradition. Excellence. Innovation.

eLearning on Social Media

Spartanburg School District 7
December 10 at 3:53 PM · 🌐

This is eLearning! It's Been a Plug-In and Play Day in District 7. Thanks for all your pictures!



112 · 5 Comments · 27 Shares · 3.5K Views

Like · Comment · Share · ⋮

Most Relevant +

Write a comment...

Thank you, D7! As a mother of D7 students and as a PES teacher, this has been the best initiative to date!
Like · Reply · 3d · 4

I love seeing our students balance work and play - a life long skill!
Like · Reply · 3d · 3

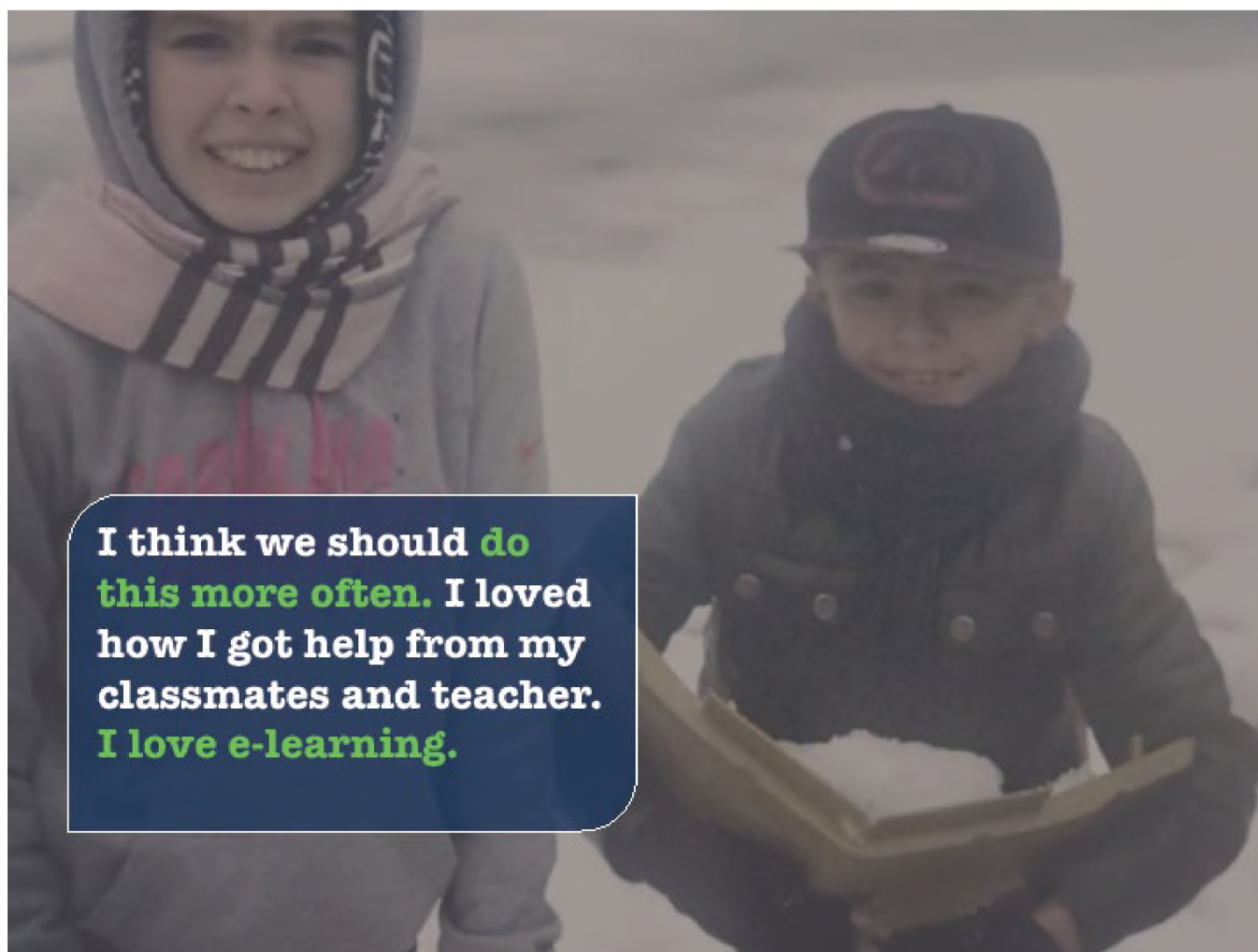
You can have fun and Continue learning too
Like · Reply · 3d

I did my work and then got on Fortnite
Like · Reply · 2d

e-learning better than make up snow days added to our school calendars! Way to go D7! Thank you!
Like · Reply · 1w · 27

What a great idea! It probably won't take all day and they will still be able to get outside. I am STILL praying that the weather somehow changes.
Like · Reply · 1w · 8

This is a great idea! Kids will be able to enjoy a snow day, but not at the expense of losing a day off later in the year. So smart!
Like · Reply · 1w · 8



I think we should **do this more often.** I loved how I got help from my classmates and teacher. **I love e-learning.**

**SC Pilot Program – eLearning
Anderson School District Five
2018-2019**

Survey

Foundation for Implementation

1. Describe the device distribution the district had in place before applying for the Pilot project. Please include the timeline for this distribution.
Anderson School District Five is one to one with Chromebooks in grades K through 12. We also have 5 devices per 4K class. Below is a historical and future timeline for our 1:1 program.
 - **October 2018: K-2nd devices refreshed.**
 - **August 2018: 6th-12th Devices Refreshed.**
 - **January 2018: New devices for 3rd - 5th, Older Devices pushed down to 1st and 2nd.**
 - **September 2015: All 5th Devices to be Distributed using the Classroom Model**
 - **August 2015: All 6th - 8th Devices to be Distributed for Take-Home Use**
 - **August 2015: All 9th-12th Devices to again be Distributed for Take-Home Use**
 - **Summer 2015: Network and Wireless Upgrades at Elementary and Middle Schools**
 - **January/February 2015: TL Hanna and Westside 10th-12th Devices Distributed for Take-Home Use**
 - **October 2014: All 9th Devices Distributed**
 - **Summer 2014: Network and Wireless Upgrades at High Schools**
 - **December 2013: 6th - 8th Devices Distributed Robert Anderson Project**
 - **December 2012: Devices Piloted for Robert Anderson Project**
2. Describe the Learning Management System the district had in place before applying for the Pilot project. Please include the timeline for using this system.
We are a GSuite District and use Google Classroom as our Learning Management System in grades K through 12. We have been a GSuite District since December of 2013. We required teachers to use Google Classroom as their LMS in 2017.
3. Describe the instructional technology expectations and implementations in the district before applying for the Pilot project. Please include professional development strategies.
Six years ago, we started preparing our teachers for a one to one Chromebook environment. We purchased SimpleK12 and required all of our teachers to get 5 hours of SimpleK12 credit. SimpleK12's mission is to help educators inspire their students, engage their learners, perfect their craft, and share their experiences to help others do the same. Online professional development. Anytime. Anywhere... even at home in your pajamas! This tool gave our teachers the ability to self select PD to suit their needs. It also gave our schools the ability to push out PD to their teachers that met their goals. We also hosted several Google Summit's for all of our teachers. These Summits included international educators as presenters. These presenters shared how they used GSuite Apps in the classroom to increase

engagement and academic achievement. We also realized that we needed to take a “team” approach to training, coaching, and modeling with all of our teachers. We have a team of 10 outstanding educators that serve as Digital Integration Specialists for our district. We also have a support person (ITSA) in each school that handles any hardware/software issues. They work out of the Information Technology Services Department. Having all of these supports in place in Anderson School District Five allowed us to be confident in our application to be a pilot district for eLearning Days.

Pre-Implementation Strategies

1. Describe the communication strategies used prior to implementation. Please strategies to for Board Members, teachers, students, parents and community. If you have a district webpage for eLearning, please include the link here.

Our eLearning Site can be accessed here.

<https://sites.google.com/anderson5.net/elearningday>. Mr. Wilson, our superintendent, sent out several communications via email to introduce the eLearning Day pilot. We presented the pilot at a School Board Meeting, Principals’ Meetings, Parent Nights across the district, and sent out Parent communications/flyers about our pilot. We also had several news stories on the pilot. A few are listed below:

- **[CBS News](#)**
- **[South Carolina's first eLearning day: How it went for Anderson School District 5](#)**
- **[Anderson School District Five, first in South Carolina for E-learning make-up day pilot](#)**
- **[Anderson 5 to launch virtual school day pilot program](#)**
- **[Anderson 5 holds first ever E-Learning day in state](#)**
- **[Washington Post Article](#)**
- **[Good Morning America](#)**
- **[Newsweek Article](#)**
- **[Yahoo Finance](#)**
- **[The Weather Channel](#)**

Social media was used to keep everyone up to date with the pilot. Our hashtag is #a5eLearning.

2. Mock or trial days. I have notes and links you have shared. If you’d like to include other notes or links, please describe here.

We had an early eLearning Day on October 11 due to Hurricane Michael. We used that day as our first trial day for eLearning.

Implementation Strategies

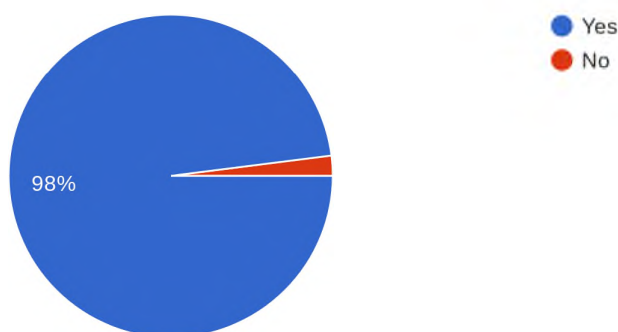
1. Describe the impact on instruction and learning when using eLearning days instead of school days canceled.

eLearning allows us to continue with instruction and keep kids engaged in the learning process. It gives us the opportunity to stay on track with the courses and curriculum we need to cover. Many of our schools have stated that they had better participation on the eLearning day than they did on any make up day we had last school year. I also believe having eLearning days will push our teachers to utilize the technology in more engaging and collaborative ways. eLearning days are preparing our students for how they will work in college and in the workplace.

2. Feedback from teachers, students, parents and administrators. Please use the 4 questions and share the results with me.

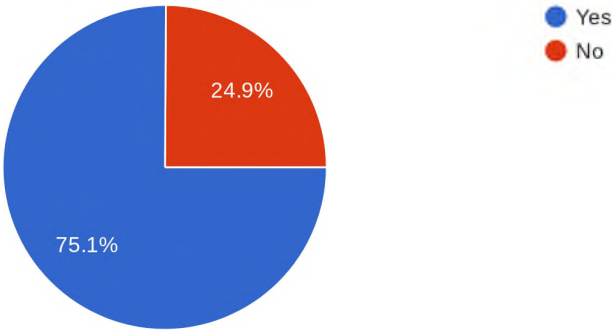
As a teacher, the elearning day provides a positive instructional opportunity for students.

897 responses



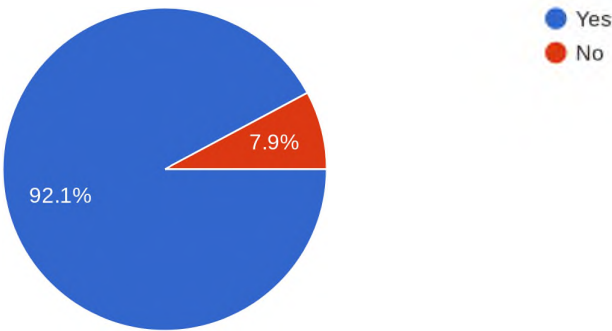
As a student, the elearning day provides a good instructional opportunity for me to continue learning and working.

1,630 responses



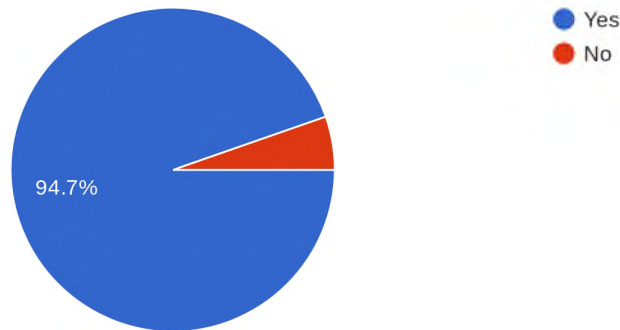
As a parent, the elearning day provides instructional lessons/activities for my child.

1,656 responses



As an administrator, the elearning day provides consistent opportunities for student learning and work.

75 responses



3. Describe 1-3 strategies your district would change (do differently) before or during implementation.
 1. **I would created example Choice Boards for teachers (K-12) to use as a template for their eLearning Lessons. These Choice Boards would include estimated times for completion of each task. I think this would help us with the issue of giving too much work to students on an eLearning Day.**
 2. **I would have an eLearning Day Parent Night at each school location. We would have the students involved in showing their parents the types of activities they are doing on the Chromebook. We would also explain the eLearning Day pilot and requirements.**
 3. **I would get students involved in creating a Public Service Announcement to the district and community concerning eLearning Days. I think having the students talk about their experience will help us communicate more effectively to our student body, staff, and community.**

**SC Pilot Program – eLearning
Kershaw County School District
2018-2019**

Survey

Foundation for Implementation

1. Describe the device distribution the district had in place before applying for the Pilot project. Please include the timeline for this distribution.
 - a. KCSD was a fully implemented 1:1 district in Middle School (6-8) and High School (9-12) prior to becoming a pilot school district. Devices were distributed to students on the first day of school. In Elementary (K-5) devices were comprised of classroom carts. Once awarded the opportunity to become a pilot district, we evaluated our inventory and ordered devices to allow each child in grades K-5 to be fully embedded as 1:1 as well. The final distribution of devices did not occur at the elementary level until mid-October due to a delay from the vendor/manufacturer.
2. Describe the Learning Management System the district had in place before applying for the Pilot project. Please include the timeline for using this system.
 - a. The district was already utilizing Google and the Google Classroom components prior to becoming a pilot district. However, in the lower grades we placed more emphasis on training as utilizing Google Classroom had previously been optional.
3. Describe the instructional technology expectations and implementations in the district before applying for the Pilot project. Please include professional development strategies.
 - a. This is my first year as the Superintendent at KCSD. Prior to arriving I reviewed the district policies. It varied based on the grade level. For example, the elementary level expectations were to utilize supplementary software such as “Imagine Learning” but it was left up to the discretion of the teacher. At the middle school level it was much of the same. At the high school level, where the district was one of the first, if not the first, one to one community, it was a part of the daily expectation as staff utilized Google Classroom and had moved away from traditional textbooks.
 - b. Professional Development occurred at the building level based on individual teacher need and request.

Pre-Implementation Strategies

1. Describe the communication strategies used prior to implementation. Please strategies for Board Members, teachers, students, parents and community. If you have a district webpage for eLearning, please include the link here.
 - a. We attempted a “phased” communication approach. We began with our School Board. This led to meetings with our teaching and support staff. There were numerous articles in our local community newspaper(s). We also utilized our “OneCallNow” system to send group recorded phone calls, emails, and text messages to our patrons.
 - b. Much of our communication directed patrons to our webpage where we had created multiple links to explain the program as well as a tab for frequently asked questions and answers: webpage url- <https://www.kcsdschools.net/domain/3002>
2. Mock or trial days. I have notes and links you have shared. If you’d like to include other notes or links, please describe here.
 - a. September 6th, Chronicle Independent- <http://www.chronicle-independent.com/archives/51212/>
 - b. October 18th, Chronicle Independent: <http://www.chronicle-independent.com/archives/51783/>
 - c. November 20th, WLTX Channel 19: <https://www.wltx.com/video/news/local/kershaw-county-schools-begin-e-learning/101-8339315>
 - d. November 26th, Chronicle Independent- <http://www.chronicle-independent.com/archives/51535/>

Implementation Strategies

1. Describe the impact on instruction and learning when using eLearning days instead of school days canceled.
 - a. We have only utilized “1” eLearning Day to date. Overwhelmingly the feedback has been positive and teachers feel as if they have not lost a day. I have been adamant that we do not “pre-plan” eLearning lessons, rather there must be continuity of instruction. This has and will allow us to maintain the integrity of our instructional program and stay on track with our pacing guides.
2. Feedback from teachers, students, parents and administrators. Please use the 4 questions and share the results with me.
 - a. Teacher feedback- They have found some students were actually more engaged than they normally were when physically present.
 - b. Parent feedback- overwhelmingly positive. However, for those students who spend a cancelled school day at a daycare it posed a challenge. For part of our

district in the northern part of Kershaw County connectivity was an issue. However, we pre-positioned over 30 school buses in that part of the county to serve as wifi hotspots.

- c. Student feedback- not one negative comment on our survey. They would like to see us utilize this concept more often if possible. We have discussed how utilizing eLearning during parent teacher conferences in lieu of a ½ student day would be much more productive.
 - d. Administrator feedback- even those administrators who aren't tech savvy appreciated seeing the flexibility for our staff and students as well as the positive feedback from our own internal surveys.
3. Describe 1-3 strategies your district would change (do differently) before or during implementation. Our district has hired a Director of Instructional Technology and eLearning. Having this person in place allows us to have a coordinated approach to professional development. This would have been useful prior to implementation.

Being a part of the pilot program has allowed our district to advance in areas we were failing to adequately provide for our students. We are spending time on professional development; training our teachers on how to “blend instruction” and flip classrooms. We are able to create more formative data, therefore we are spending time on how to effectively use this data. We have hired a person that not only focuses on eLearning in our district rather virtual instruction whether it be for remediating or accelerating our students. As I evaluate our data I believe this process has been an inspiration for growth in our district.

**SC Pilot Program – eLearning
School District of Pickens County
2018-2019**

Survey

Foundation for Implementation

1. Describe the device distribution the district had in place before applying for the Pilot project. Please include the timeline for this distribution.

SDPC first implemented a 1:1 program in 2015. We call this program Tech It Home. We started with 9th graders, then added middle and high in 2016, and 4th and 5th in 2017. All students in grades 4 through 12 now have a Chromebook and take them home.

2. Describe the Learning Management System the district had in place before applying for the Pilot project. Please include the timeline for using this system.

SDPC has three key platforms for our digital ecosystem that we call our Digital Top Stops. The first is ClassLink for our single sign-on platform, the second is Schoology for our LMS, and the third is Safari Montage for our learning object repository. All platforms are fully interoperable. Additionally, the SDPC technology department rosters the majority of digital web applications for teachers. These are available through at least one of our Digital Top Stops, if not all three. We are in our fourth year of implementation of all three systems.

3. Describe the instructional technology expectations and implementations in the district before applying for the Pilot project. Please include professional development strategies.

In 2013, SDPC implemented a district-wide BYOD program. We trained all teachers in managing BYOD. As we migrated from BYOD to Tech It Home, we added additional PD requirements to train teachers in using Schoology, ClassLink, Safari Montage, digital textbooks, web applications, and LanSchool. We also collaborated with Modern Teacher to train teachers and administrators in best practices for creating digital lessons for personalized and customized instruction. All teachers in grades 3-12 are required to use Schoology for posting digital lessons. As we have moved further into the implementation of digital curriculum, we see teachers effectively using our LMS, including teachers training and supporting each other in best practices. Delivering instruction with our digital ecosystem is now common practice.

Pre-Implementation Strategies

1. Describe the communication strategies used prior to implementation. Please strategies to for Board Members, teachers, students, parents and community. If you have a district webpage for eLearning, please include the link here.

Before we applied to become a pilot district, the superintendent and senior leadership staff presented information to board members over multiple months. As we worked through the pilot application, we kept board members, administrators, and teachers in the loop. Once SC DOE accepted us into the pilot, we communicated with parents and students through press releases, social media, and school newsletters. We created a district webpage for our program, which we call Digital Learning Days. [SDPC Digital Learning Days](#) [WYFF Story August](#) [Fox Story August](#) [Greenville Story August](#) We developed an online professional development course to educate teachers on the particulars of our Digital Learning Day policy and procedures. Teachers received PD and technology credits for participating.

2. Mock or trial days. I have notes and links you have shared. If you'd like to include other notes or links, please describe here.

We required all schools and teachers to conduct one mock day prior to using a Digital Learning Day. We practiced finding assignments and downloading them, and practiced finding and accessing assignments on Chromebooks without Internet access.

Implementation Strategies

1. Describe the impact on instruction and learning when using eLearning days instead of school days canceled.

We used two Digital Learning Days back to back. We did not note any serious disruption to learning in grades 4 through 12 from feedback in the surveys and social media. However, not all early childhood teachers had explained and/or prepared work for students for two back-to-back days. Some students had to make-up this day's work after returning to school.

2. Feedback from teachers, students, parents and administrators. Please use the 4 questions and share the results with me.

Digital Learning Days provide instructional lessons/activities for my child. YES

- a. Parents: **91.25%**
- b. Students: K-3rd Grade **90%**; 4th -5th Grade **94%**; 6th -12th Grade **71%**
- c. Teachers: **94%**
- d. Administrator: **93%**

3. Describe 1-3 strategies your district would change (do differently) before or during implementation.
- a. We would make sure early childhood teachers communicate plans in the event we are out more than one day. The packets sent home had enough activities for multiple days, and we should've communicated how to use those activities on additional day.
 - b. Ensure that teachers do not require that information be printed in order to be completed.
 - c. We would make sure teachers who gave too much work knew to give a more appropriate amount of work. Our biggest complaint was teachers who gave too much work. This accounted for 15% according to parent feedback. We need to have consistent procedures that all administrators follow for Digital Learning Days.
 - i. Elementary Level Guidelines – not more than 30 minutes per core subject area and 10 minutes of related arts for a total of 130 minutes per day.
 - ii. Middle Level Guidelines – between 30-45 minutes per core subject; 10-15 minutes per related arts; for a total of not more than 195 minutes
 - iii. Carnegie Unit Courses (middle or high school) – between 30-45 minutes for half-unit course; between 45 minutes – 60 minutes for full unit courses

**SC Pilot Program – eLearning
Spartanburg County School District One
2018-2019**

Survey

Foundation for Implementation

1. Describe the device distribution the district had in place before applying for the Pilot project. Please include the timeline for this distribution.

- 3 years prior: Infrastructure upgrades: switches, cabling, wifi access points in every classroom, bandwidth increase.
- 2 years prior: Implementation of GSuite cloud based services, Learning Management System, roll-out of 1:1 of teacher devices, Teacher professional development of technology integration strategies
- 1 year prior: Roll-Out of student 1:1 devices phased in over a period of 11 months

4. Describe the Learning Management System the district had in place before applying for the Pilot project. Please include the timeline for using this system.

Google Classroom is the primary LMS implemented 2 years prior with extensive teacher PD in effective integration into daily instruction. At the time of the eLearning opportunity the LMS was firmly integrated.

5. Describe the instructional technology expectations and implementations in the district before applying for the Pilot project. Please include professional development strategies.

Since the beginning of our technology initiative 3 years prior, each teacher has gradually increased the effective integration of technology into classroom instruction. Extensive PD and staff development has been in place for 3 years in order to drive the authentic adoption of technology. The job expectations of the each school's media specialist was shifted 3 years to be a site level technology integration resource. In addition, a Technology Integration Specialist was added at the District level to assist the development of Media Specialists, Instructional Coaches, and teachers. The effective use of technology has now been successfully woven into the fabric of our Staff Development with school and district opportunities being offered. In some cases the PD is "buffet style" allowing teachers to choose the technology PD that best suits their needs, and in some cases the training is mandated district-wide. The PD offerings have, and continue to be, a parallel of technology roll-out (i.e. as technology tools are rolled-out, the PD offerings are there to support). The eLearning pathway is a natural extension of 3 years of instructional technology expectations.

Pre-Implementation Strategies

1. Describe the communication strategies used prior to implementation. Please strategies to for Board Members, teachers, students, parents and community. If you have a district webpage for eLearning, please include the link here.

Updates to the Board began at the selection in the pilot program and continue through pre-established monthly instructional reports. When we do use an eLearning day, we plan to utilize the district facebook and twitter social media outlets, school messenger for phone and email notification to parents, and release to press. We are currently in the process of

2. Mock or trial days. I have notes and links you have shared. If you'd like to include other notes or links, please describe here.

We have conducted multiple, small mocks trials. We began with a single mock "period" at one school. The next mock event followed a few weeks later at an entire 6th grade level for one teacher. We have expanded our mock to include successively larger groups of teachers and students. Our initial mocks were beneficial in confirming readiness with hardware, management systems, filtering, etc.

Implementation Strategies

1. Describe the impact on instruction and learning when using eLearning days instead of school days canceled.

Not applicable, yet

2. Feedback from teachers, students, parents and administrators. Please use the 4 questions and share the results with me.

Not applicable, yet

3. Describe 1-3 strategies your district would change (do differently) before or during implementation.

Even though we have not yet used an eLearning day yet, we can already see the importance of having a readiness checklist at all levels including classroom, school, and district. Procedural documentation for attendance clerks, teacher gradebooks, and hourly time cards. Communication, Communication, Communication.

Sample Website Communication (Kershaw County School District)

See: <https://www.kcsdschools.net/elearning>

EDUCATION OVERSIGHT COMMITTEE

Subcommittee: Academic Standards and Assessments

Date: February 11, 2019

ACTION ITEM:

Amendments to Accountability Under ESSA for School Year 2018-19

PURPOSE/AUTHORITY

States may submit proposed amendments to the United States Department of Education regarding the Every Student Succeeds Act (ESSA) plan by March 1, 2019. Pursuant to Section 59-18-900 of the Education Accountability Act (EAA), the state's accountability system must meet federal requirements. Therefore, any changes to the accountability of schools requires EOC approval.

CRITICAL FACTS

The staffs of the EOC and South Carolina Department of Education (SCDE) met in December of 2018 and January of 2019. SCDE is proposing changes to the state's ESSA plan. The EOC staff will provide feedback to the EOC on these changes prior to the January 28 subcommittee meeting.

TIMELINE/REVIEW PROCESS

December 12, 2018	EOC and SCDE staff meet to discuss revisions.
December 19, 2018	EOC and SCDE staff meet to discuss revisions.
January 10, 2019	EOC and SCDE staff meet to discuss revisions.
January 28, 2019	Academic Standards and Assessments Subcommittee met to discuss SCDE proposals. A separate proposal was submitted by superintendents.

ECONOMIC IMPACT FOR EOC

Cost: No fiscal impact beyond current appropriations

Fund/Source:

ACTION REQUEST

☒ For approval

☐ For Information

☐ Approved

ACTION TAKEN

☐ Amended

☐ Not Approved
(explain)

☐ Action deferred



Academic Standards and Assessments Subcommittee

SCDE Proposed Changes to State ESSA Plan for 2018-19

The Academic Standards and Assessments Subcommittee met on January 28, 2019 and discussed changes proposed by the South Carolina Department of Education (SCDE) to accountability. At the meeting, district superintendents also submitted a written proposal. The EOC has requested additional information to clarify the SCDE proposal as well as other proposals to change the calculation of ratings for Academic Achievement, Preparing for Success and Graduation Rate indicators and the calculation of overall school ratings. The Subcommittee reached consensus on the following changes to the State ESSA plan for school year 2018-19.

Indicator: Student Progress

SCDE Proposal: Review the impact of the growth measure on high achieving schools for whether some decision rule should be put in place.

SCDE Rationale: Perception is that high-achieving schools cannot retain high growth scores over time. This is being investigated. If the denominator on achievement is changed, we would implement a business rule for a school that had low growth, similar to previous accountability models.

Prepares to remove references to vendors and make the language more generic with references to the SC Accountability Manual for details. Therefore, SCDE believes it is possible to implement business rules for 2018-19.

Academic Standards and Assessments Subcommittee: Recommends EOC concur with proposal.

Explanation: Current state law requires the use of a value-added growth measure. The current SCDE contract with EVAAS is under protest and a ruling has not been rendered.

Indicator: English Language Proficiency

SCDE Proposal: Determine whether 4.0 (approved for some other states) is “proficiency” on the ACCESS assessment.

SCDE Rationale: Level the playing field for our state on this new assessment by not overstating the proficiency score without more data. The ESOL community of practitioners supports changing the ELP calculations. SCDE will provide the data on SC READY results for ELP students.

Academic Standards and Assessments Subcommittee: Recommends EOC concur as long as data analysis is provided and that ESOL teachers concur with recommendations.

Explanation: Under the current accountability system, English proficiency is defined as having earned at least a 4.4 on ACCESS, the test used to measure English proficiency, with no sub-score below a 4.0 in reading, writing, speaking or listening. The proposal is to lower the proficiency threshold to 4.0 with no sub-score requirement as is the practice in some states. The original 4.4 proficiency level was established by English as a Second Language (ESOL) teachers in South Carolina. The Subcommittee asked for data to confirm that students who scored a 4.0 on ACCESS were succeeding on SC READY and that ESOL teachers concur with SCDE recommendation to lower the proficiency standard.

Indicator: Student Engagement

SCDE Proposal: Work with the vendor to set a criterion-referenced method of distributing points.

SCDE Rationale: The current “competitive” decile method is not tied to whether a school is “Excellent” or “Unsatisfactory” and does not consider “compliant” students in ranking schools. A school with points: 50% Committed, 40% Compliant, and 10% disengaged is ranked the same as one with 50%, 10% Compliant and 40% disengaged.

Academic Standards and Assessments Subcommittee: Recommends EOC concur.

Explanation: The EOC received concerns from educators questioning the reliability, validity and implementation of the Student Engagement Survey. In turn, these concerns questioned the use of the indicator in an accountability system. The EOC discussed other options and encourages consideration of these alternatives beginning in school year 2019-20.

Note: This indicator will no longer be the “Student Quality” indicator but instead the “Student Engagement” indicator.

Indicator: College & Career Readiness

SCDE Proposal: Add to career-ready the dual credit courses aligned to a completer pathway (6 hours, “C” or better) and additional certifications + completer status.

SCDE Rationale: Especially in small, rural districts the access to varied CTE pathways and certifications is limited. These additions would make this indicator more equitable and acknowledge the post- secondary readiness of these students.

SCDE is interested in making more options available to students on a career ready completer pathway. SCDE does not believe these students need to be on an AA or BA pathway in order to be career ready. Students are demonstrating success by earning six credit hours in an institution of higher education with a successful grade of “C.”

Academic Standards and Assessments Subcommittee: Recommends EOC concur.

Explanation: With the addition, a career-ready student would be defined as a student who meets one of the following five definitions:

- Is a CTE completer and earns a national industry credential or a state industry credential as determined by the business community (list here); or
- Earns a Silver, Gold or Platinum National Career Readiness Certificate on the WorkKeys exam or Silver, Gold or Platinum Credential on the WIN Ready to Work Career Assessment; or
- Earns a scale score of 31 or higher on the ASVAB;
- Completes at least six (6) credit hours in dual enrollment CTE courses aligned to a completer pathway with a grade of C or higher; or
- Successfully completes a state-approved work-based learning exit evaluation from an employer. The work-based learning program must include:
 - Training agreement which defines a combination of objectives and a minimum of 40 practical experience hours or the highest number of hours required by industry defined competencies in a career pathway;
 - Be aligned with state IGP career clusters;
 - Include an industry evaluation that is created from the training agreement, which includes the world-class skills from the Profile of the South Carolina Graduate;
 - The student must have earned a minimum of one unit in the pathway related to the work-based placement or completed a personal pathway of study.

FYI

QUALITY COUNTS 2019: GRADING THE STATES

Chance for Success

[Complete Coverage ▶](#)

EDITOR'S NOTE

How Education Helps Set the Course from Cradle to Career

January 15, 2019

Welcome to the leadoff edition of *Quality Counts 2019*, the first of three reports this year that will culminate in comprehensive A-F grades in September for state school systems and the nation as a whole based on a host of factors that help determine school quality.

 [Back to Story](#)

This first report focuses on *Education Week's* Chance-for-Success Index. Launched in 2007, it surveys a range of social and educational conditions that, taken together, affect a person's prospect of positive outcomes over the course of a lifetime.

This multifaceted assessment doesn't cover everything—after all, who's to define what amounts to something as subjective as "success" or to judge when someone meets that goal? But the 13 key indicators identified by the Education Week Research Center in compiling the index reflect many of the components crucial to any such definition, including family resources, educational access and completion, stable employment, and a range of other factors that trace the arc from early childhood to formal school and into the working world.

You'll notice that the Chance-for-Success Index focuses on the educational environment and on outcomes, not specific policies. Factors such as family income, parental education levels, employment status, and college attainment are bound up with social, economic—and even geographic—forces that defy quick political fixes.

Instead, *Education Week's* goal is to chart the terrain policymakers face as they seek to build a solid pathway to educational and career success for those they serve, highlighting standouts and soft spots alike.

Work in Progress

States' efforts are a work in progress and hardly uniform. The top performers in one category may fall short in others, while even the most-challenged states may show progress or achievement in certain areas. Since the 2008 *Quality Counts* report, the Research Center has used a "Best in Class" approach for these rankings, where the top performer gets the highest grade and others are graded relative to the front-runner.

And the Chance-for-Success Index is just a part of the picture in sketching the overall educational climate and achievement of the nation's public school system as a whole.

QUALITY COUNTS 2019:
Grading the States
Chance for Success

Highlights From the Report

Data: Are We Preparing Students for a Lifetime of Success?

States Show Striking Variations on Best Places to Bring Up a Child

Is Geography Destiny? The Debate Over Boosting K-12 Quality

State Grades on K-12 Education: Map and Rankings

State Highlights Reports

Full Report

Read the Full Report

In June, *Education Week* will publish the second installment of *Quality Counts*, examining school finance and the role that funding levels and funding equity play in educational quality.

September's *Quality Counts* features the K-12 Achievement Index, capturing the academic performance of the nation and the states through the lens of test scores, graduation rates, and the poverty gap, among other factors.

And as a capstone, the September report will unveil *Education Week*'s annual summative grades and scores, marking 23 years of this flagship exercise in school accountability. For more detail on individual states, be sure to download the State Highlights Reports prepared by the Education Week Research Center.

—The Editors

Vol. 38, Issue 18, Page 20

Published in Print: January 16, 2019, as **How Education Helps Establish a Trajectory From Cradle to Career**

QUALITY COUNTS 2019: GRADING THE STATES

Chance for Success

[Complete Coverage ▶](#)

Data: Are We Preparing Students for a Lifetime of Success?

By **Sterling C. Lloyd** and **Alex Harwin**

January 15, 2019

The Education Week Research Center's Chance-for-Success Index identifies strengths and weaknesses in each state's education pipeline that—taken together—capture the many factors within and outside of the pre-K-12 education system that contribute to a person's success throughout a lifetime.

[◀ Back to Story](#)

The Index is based on 13 distinct factors gauging education-related opportunities in three broad stages of a person's life: early foundations, the school years, and adult outcomes.

In the early-foundations category, the index measures factors that provide support to children as they prepare to enter the formal education system, including prekindergarten. These factors include family income, parental education levels, and parents' English-language fluency.

The metrics in the school years incorporate key markers of pre-K-12 participation and performance, ranging from preschool to postsecondary. Adult outcomes are evaluated based on educational attainment, income, and steady employment.

These latest scores—updated with fresh data since the *Quality Counts* report issued in September—reflect the 2017 results of the National Assessment of Educational Progress, adjusted cohort graduation rates from 2015-16 published by the U.S. Department of Education, and the research center's analysis of 2017 data from the U.S. Census Bureau.



The updates mean scores and rankings for some states have shifted slightly from last September's report.

Point totals are determined by a best-in-class methodology, which compares a state's results on each indicator with the leading state on that specific metric. The top state receives 100 points. All other jurisdictions earn points based on their distance from the national leader. The point totals are then translated into A-F letter grades reflecting the average of numerical scores on a 100-point scale. The results for the Chance-for-Success Index, reported in this January installment of *Quality Counts* 2019, make up one-third of the overall state and national grades that will be published in September.

The nation receives a grade of C-plus for Chance for Success this year, with a score of 79.0 out of 100 possible points, up 0.5 points since last year. Nearly half the states (24) finish with grades between C-minus and C-plus.

Massachusetts (91.5) leads the nation, with the only A-minus. It's followed by four states at B-plus: New Jersey (89.1), New Hampshire (88.8), Connecticut (87.4), and Minnesota (87.0). New Mexico (68.0) is at the bottom of the rankings, with a D-plus.

Results on the index offer an opportunity for educators, policymakers, and residents to zero in on specific insights for their own states. Overall, five key takeaways emerge from the data.

1. Strong K-12 test scores and postsecondary participation make Massachusetts the pound-for-pound champion in the Chance-for-Success category.

The contest isn't all that close.

Massachusetts ranks in the top 10 for eight of the index's 13 indicators. To be sure, it has some socioeconomic advantages based on long-standing educational and financial patterns. For instance, it ranks third in family income and fourth in parental education levels. More than 6 in 10 children in the state have a parent with a postsecondary degree, compared with slightly more than half of children nationwide. Those building blocks help the state's children get off to a strong start.

But it is strong results within the formal pre-K-12 education system that push the state past its nearest competitors.

Which indicators give Massachusetts an edge on other high-ranking states? Drill down into a comparison with the other states in the overall Chance-for-Success top five (New Jersey, New Hampshire, Connecticut, and Minnesota) and it's apparent that reading and math scores are the key to keeping Massachusetts king of the hill.

It ranks first in the nation for both the percent of 4th graders proficient in reading and the percent of 8th graders proficient in math on the 2017 National Assessment of Educational Progress. It's the only state in the nation in which a majority (50.8 percent) of 4th graders are proficient in reading. Only 39.1 percent of Minnesota's 4th graders, for instance, score at that level. Similarly, nearly half (49.7 percent) of 8th graders in Massachusetts are proficient in math, compared with just 36.2 percent in Connecticut.

Postsecondary participation rates also separate Massachusetts from other states that score high on the index. It ranks second in the nation with 72.1 percent of its 18- to 24-year-olds either enrolled in a postsecondary program or already earning a degree. In New Hampshire, by contrast, just 60.1 percent of young adults are participating in postsecondary education, placing the state 12th in the nation in that category.



2. The region where you live makes a difference.

States in the Northeast and Mid-Atlantic regions provide the best opportunities for success. The biggest barriers are found in the South and Southwest.

Regional disparities persist across a range of economic and educational factors that contribute to success. The top-scoring states on the index are commonly located in an East Coast section of the map stretching from Virginia to Maine. Five of the six states with the highest overall scores (Massachusetts, New Jersey, New Hampshire, Connecticut, and Virginia) are in that corridor.

States in that area also finish first in the nation on several indicators making up the index. The District of Columbia—considered a state for purposes of Chance for Success—leads the nation in preschool enrollment, postsecondary participation, adult educational attainment, and annual income. Massachusetts is the pacesetter for reading and math test scores. New Hampshire ranks first in family income.

Despite the geographic concentration of strong opportunities in this cluster of states, top scores are not entirely limited to the Atlantic Coast. Minnesota (5th), Iowa (7th), and North Dakota (10th) are Midwestern states in the top 10 overall. Minnesota ranks in the top 10 on seven indicators, posting a second-place finish in both parental-education and 8th grade math. Iowa has the nation's best high school graduation and parental employment rates, while North Dakota is the national leader in parental education.

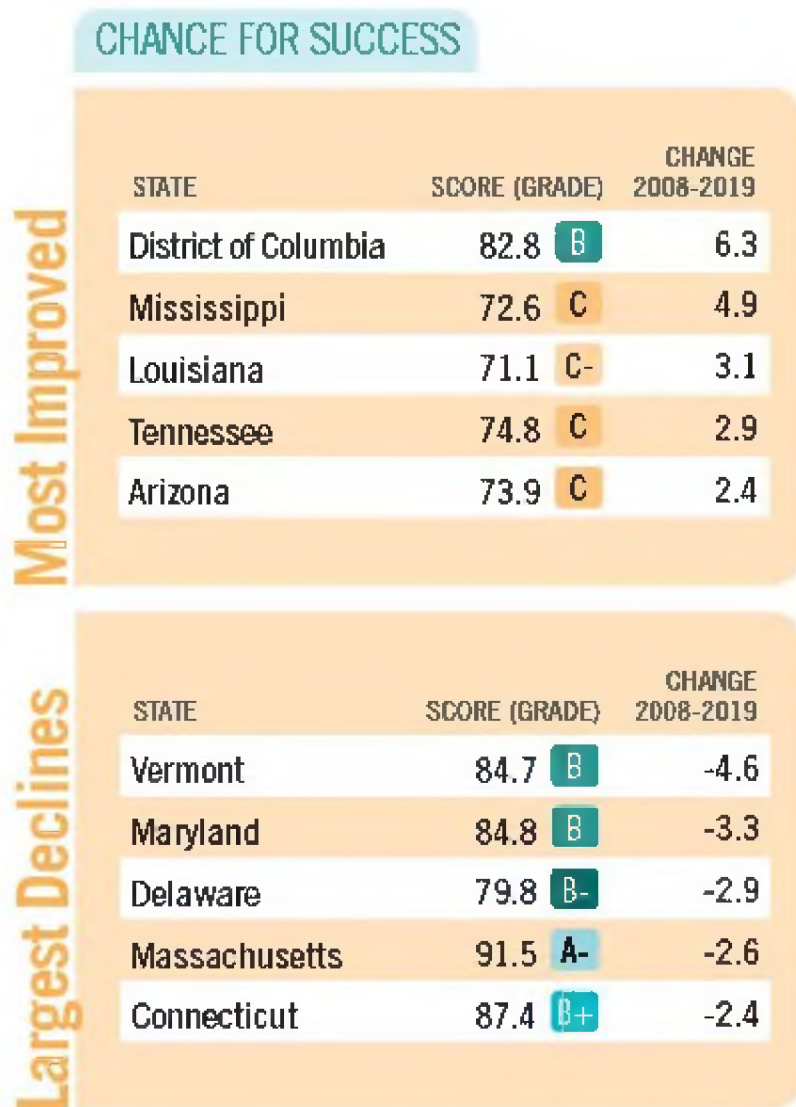
At the other end of the spectrum, states in the South and Southwest make up most of the index's bottom tier. Louisiana, Nevada, and New Mexico are the bottom three states overall. States in these regions also rank last on several specific indicators. Louisiana is last in 8th grade math, while Mississippi finishes at the bottom for annual income. New Mexico holds the last spot in family income and 4th grade reading. Nevada falls to the bottom for parental education levels and postsecondary participation.

3. Across the nation, opportunities haven't improved much over time.

To evaluate trends over time, 2019 results can be compared with data from 2008, the year the index's current scoring system was first used. Since that time, the nation's score hasn't changed much—it has risen by just 0.6 points from 78.4 in 2008 to 79.0 in 2019. More than half the states (29) improved their scores by less than a point or saw them decline. Scores in 10 states decreased by more than one point. The stagnant scores present a challenge to policymakers and signal that new strategies for boosting opportunity are needed.

Despite a relatively static picture of opportunity growth overall, the nation has made strides on certain metrics. For instance, the percent of children with at least one parent holding a postsecondary credential increased by 7.5 points.

4. Opportunities improved the most in the District of Columbia, Louisiana, and Mississippi. They declined the most in Vermont and Maryland.



SOURCE: Education Week Research Center, 2019

Some states did boost opportunity from 2008 to 2019. The District of Columbia made the strongest gains, increasing its score by 6.3 points. That improvement was propelled by the nation's largest strides in 4th grade reading (14.9 points) and 8th grade math (12.9 points). As a result, the District's overall index ranking climbed from 33rd in 2008 to 15th in 2019. Mississippi (4.9 points) and Louisiana (3.1 points) also improved their scores by more than three points. Mississippi made strong gains in parental education levels, 4th grade reading, and 8th grade math. Louisiana's biggest upticks were in employment for parents and other adults, along with parental education.

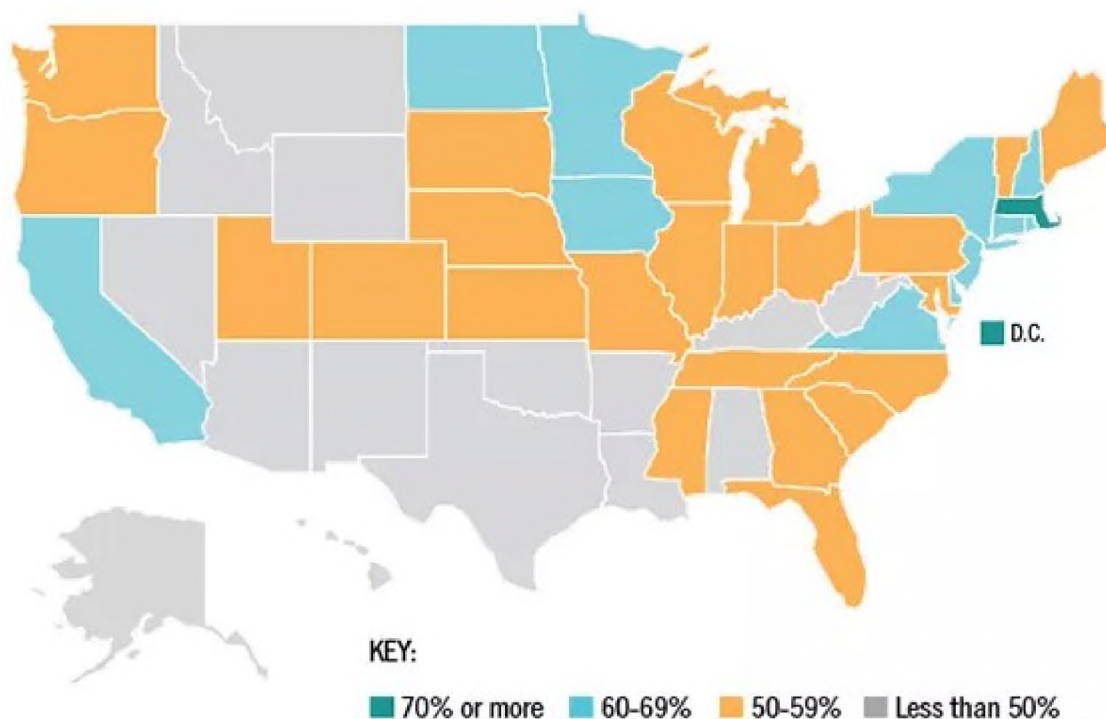
By contrast, overall index scores in Vermont (-4.6) and Maryland (-3.3) fell by more than three points. Both of those states declined in family income, the language proficiency of parents, and 8th grade math. Vermont's kindergarten enrollment also slid.

5. The nation earns a lower score for pre-K-12 education than for indicators capturing early childhood and adult outcomes.

As policymakers seek to spur opportunity, improvement in the pre-K-12 education system remains a key goal. The nation receives a score of 76.7 (C-plus) for the school years, compared with a point total of 82.8 (B) for educational foundations in early childhood, and 78.3 (C-plus) for markers of adult success. A handful of states post especially good results in the school years. Massachusetts earns an A and New Jersey an A-minus. Connecticut gets the only B-plus. But seven states receive marks of D-plus or D for school performance. Future gains on the index may depend on pinpointing policies and instructional strategies that boost each student's chance for success.

POSTSECONDARY PARTICIPATION

More than 7 in 10 young adults participate in postsecondary education in the District of Columbia and Massachusetts. By contrast, participation rates are under 50 percent in 15 states.



SOURCE: Education Week Research Center, 2019

STATE HIGHLIGHTS REPORT

South Carolina Earns a C on Chance-for-Success Index, Ranks 39th in Nation**An *Education Week* State Highlight Report**

January 16, 2019

Quality Counts reports state grades for educational performance in three installments. The January installment provides results on the Chance-for-Success Index, one-third of a state's overall grade. In June, *Education Week* publishes the second installment, focusing on school finance. The September publication features the K-12 Achievement Index and overall grades. A state's overall grade is the average of its scores on the three separate indices tracked by the report.

 [Back to Story](#)**Chance for Success**

The Education Week Research Center developed the Chance-for-Success Index to better understand the role that education plays in promoting positive outcomes across an individual's lifetime. Based on an original state-by-state analysis, this index combines information from 13 indicators that span a person's life from cradle to career. Those indicators fall into three sub-sections: early foundations, school years, and adult outcomes.

Diving into the findings, South Carolina earns a C in the Chance-for-Success category and ranks 39th. The average state earns a C-plus.

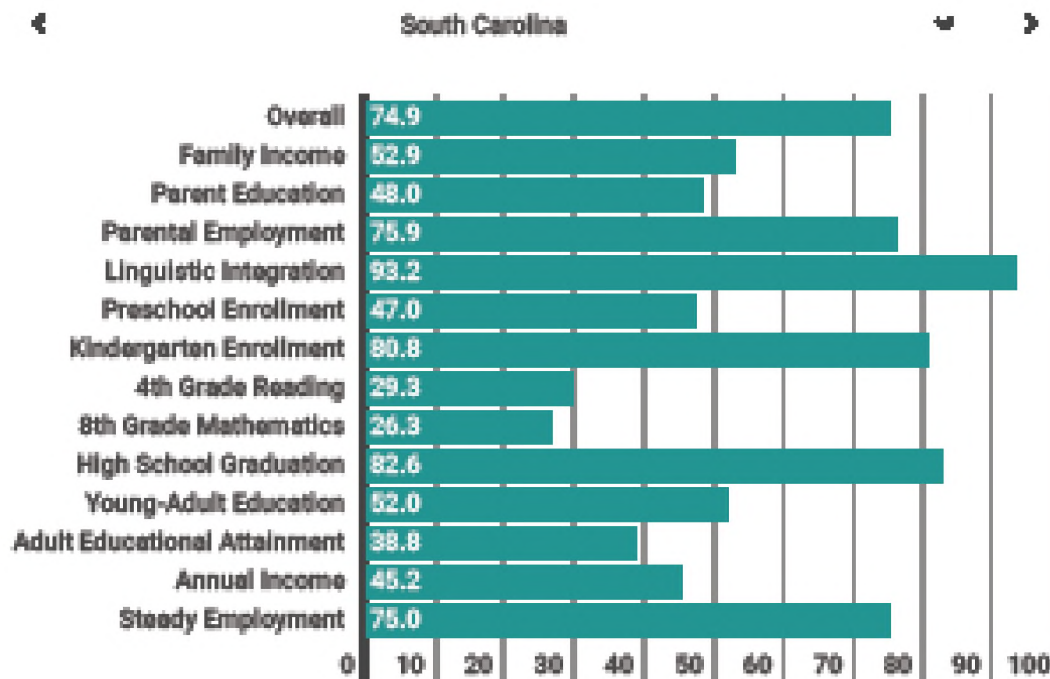
For early foundations, which examines factors that help children get off to a good start, South Carolina earns a B-minus and ranks 35th. The average state posts a B.

South Carolina receives a C-minus for the school years, a sub-category focusing on metrics related to pre-k enrollment through postsecondary participation. It finishes 39th in the nation in this area. By comparison, the nation as a whole earns a C-plus.

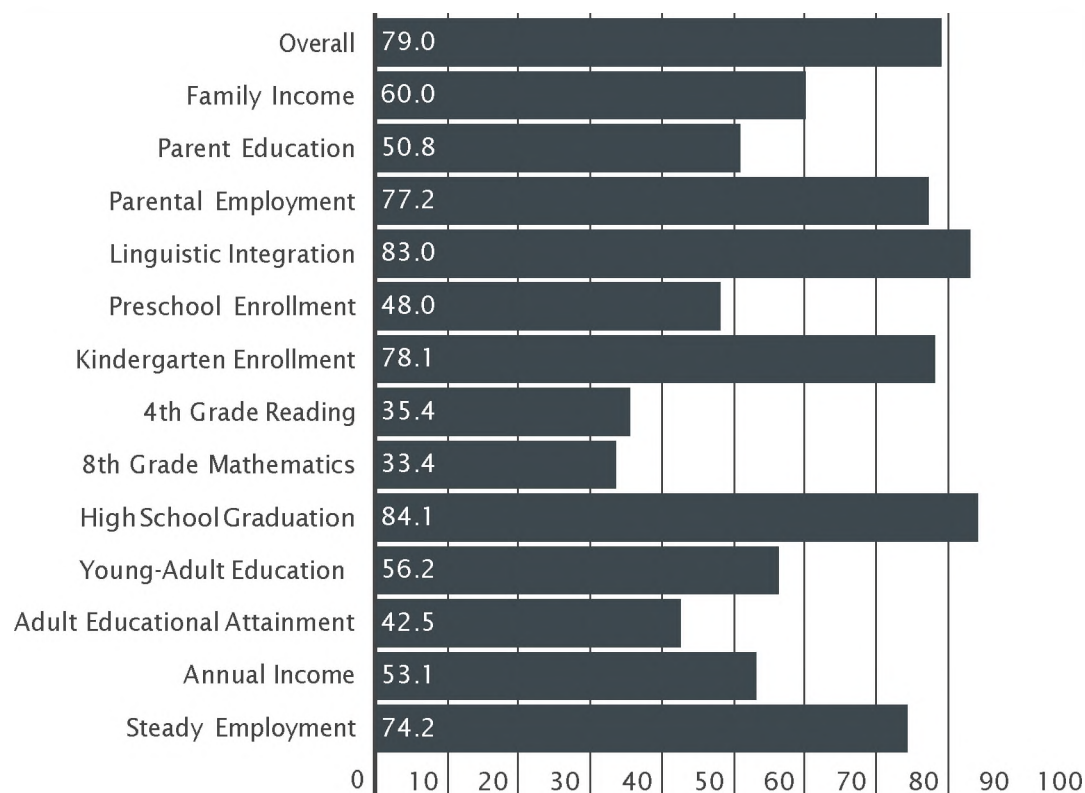
In the area of adult outcomes, based on postsecondary educational attainment and workforce indicators, South Carolina's grade is a C. It ranks 41st in the nation. The national average is a C-plus.

Chance-for-Success Results by State

> The bar charts below provide results for each of the 13 indicators making up the Chance-for-Success Index. Use the top bar to navigate to the states that interest you.



U.S. Score



January 15, 2019

State Grades on Chance for Success: 2019 Map and Rankings

Examine the grades and scores that states and the nation earned on the Chance-for-Success Index in Quality Counts 2019, along with how they scored on a host of socioeconomic and other indicators that go into those rankings. For a description of what these education indicators mean, [view the grading scale and methodology](#).

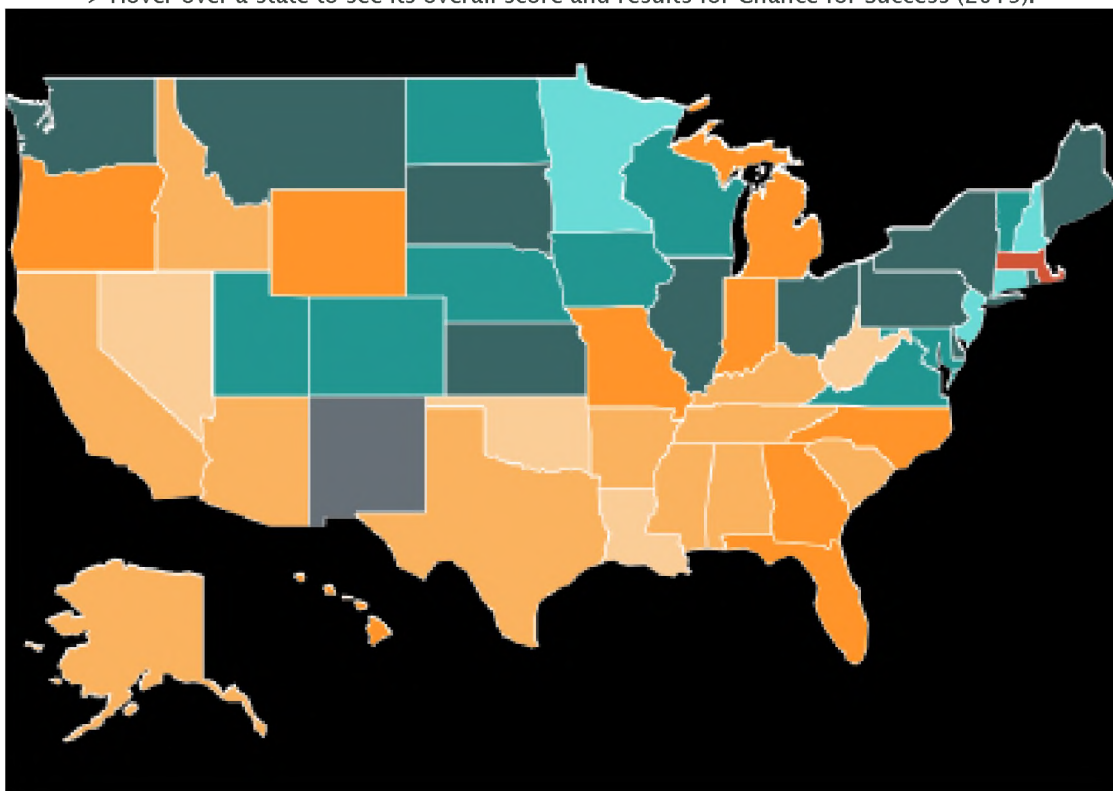
Nation Earns a C+ in Chance for Success

Massachusetts earns the nation's highest grade in the Chance-for-Success category, with an A-minus. New Mexico, at D-plus, receives the lowest mark. The highest-scoring states are often found in the Northeast and Mid-Atlantic regions while the lowest results are commonly seen in the South and Southwest.

National score is a C+(79.0)

■ A- ■ B+ ■ B ■ B- ■ C+ ■ C ■ C- ■ D+

> Hover over a state to see its overall score and results for Chance for Success (2019).



SOURCE: Education Week Research Center, 2019

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EDUCATION WEEK

States Show Striking Variations on Best Places to Bring Up a Child

How top states enhance student prospects

By **Daarel Burnette II**

January 15, 2019

When it comes to setting a child up for success in America—at least when it comes to crucial education and socioeconomic factors—place matters more than ever. [Back to Story](#)

That's the picture that emerges from analysis of the latest data in the *Quality Counts 2019* Chance-For-Success Index.

A rapidly evolving economy, dramatic demographic shifts, and **political discord** at the federal, state, and local levels over the last half century have left in their wake a jagged K-12 landscape among the states. In some places, schools are well equipped with the newest technology, a stable teaching force, and the ability to assure their graduates head off to college at an enviable rate, while others fall short on those markers and others.

These disparities may put education policymakers under even greater scrutiny in the era of the Every Student Succeeds Act, which gives states more say over how to oversee their public schools and is focusing attention on states' school governance models, K-12 spending schemes, and ability to identify and replicate success.

Clustered at the Top

In its Chance-for-Success Index, the Education Week's Research Center looks at indicators in early childhood, the school years, and adult outcomes such as steady employment and educational attainment.

Most of the top five states are clustered in the Northeast, which also happen to be places with generally strong economies and pockets of extreme wealth, according to U.S. Census Bureau's 2017 American Community Survey. Though debates over funding equity continue even in high-performing states, some of that wealth inevitably trickles into schools. And parents with full-time, stable jobs can often afford—and are willing to spend money on—preschool, after-school tutoring, and college, things that contribute to their children's chances for success.

All five top states are perennial top-performers on the index overall, but they're not immune to pressures that bedevil other states. For instance, New Hampshire ranks 42nd for kindergarten enrollment, and Minnesota is 35th for high school graduation.

In fact, fundamental problems continue to confront a large portion of America's schools including teacher shortages, concentrations of poverty, and funding crises spurred on by outdated taxing models and school

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funding formulas.

And this year's report once again reflects the headwinds states face in assuring a strong foundation for their residents. This year's national grade of C-plus on the Chance-for-Success Index **is effectively unchanged over the last decade**, with high-performing states and improvements in the middle of the pack still unable to budge the nation's overall score upward to any significant degree. Only one state—Massachusetts—received an A-minus, also unchanged from last year.

What's so special about the high performers?

Overall, they tend to score well in all of the 13 indicators the Chance-for-Success Index measures. These run the gamut from factors like families with stable jobs, good incomes, and strong parental education—factors largely beyond the control of K-12 policymakers—to academic achievement, which is often bound up with debates over school governance and standards.

With all that in mind, here are some highlights from the cluster of states that top this year's list of best places in America to raise a child with an eye toward lifetime success.

Massachusetts (A-minus): In 1993, Massachusetts' lawmakers passed the Massachusetts Education Reform Act that featured statewide academic standards, a new accountability system, and millions more dollars into its school system. Many argue that having a long-standing statewide consensus on what teachers should expect from their students can significantly increase the likelihood that students meet and exceed those expectations.

Under the category of "School Years," Massachusetts lands almost half its 8th graders as proficient on NAEP's math exams and more than half its 4th graders were proficient on reading exams. In that same category, more than 87 percent of Massachusetts high school students graduate with a diploma and 72 percent of those young adults go on to enroll in a postsecondary school.

And while it's not something captured by Chance for Success, the state's department of education has gained attention for its efforts to improve its worst-performing schools, a process that includes both state and local input.

Challenges remain in other areas, however: Many school districts are squeezed financially, for example, and the state's growing number of English-language learners continue to struggle on state exams. Education and political leaders are debating how to overhaul the school spending formula and some parts of the state's accountability system.

New Jersey (B-plus): States that can get children enrolled in prekindergarten early and assure that they stay in the school system through the end of their senior year of high school are more likely to set them up for success later on in life.

New Jersey has one of the highest levels of preschool enrollment in the nation, according to the Education Week Research Center. More than 90 percent of its students end up graduating from high school.

But it's not just K-12 policymakers that have been behind the wheel: New Jersey's courts have been among the most active in the nation in pushing state officials to improve schools. The state's supreme court in recent years has mandated small class sizes, pre-K enrollment, and minimal teacher qualifications for 31 of its mostly poor, urban districts.

And the state's overall high performance comes against the backdrop of plenty of political and policy ferment over the years. Under former-Gov. Chris Christie, a Republican, the state was entrenched in a debate over how to compensate and hold accountable the state's teachers, test its students, and improve

its worst-performing schools. And Gov. Phil Murphy, a Democrat elected in 2017, has pushed to change the way the state tests its students and expand its pre-K programs.

New Hampshire (B-plus): This high-performing state has focused plenty of attention on the career end of the educational pipeline. Amid a statewide workforce shortage, Spaulding High School, Great Bay Community College, and aerospace component manufacturer Safran, all based in Rochester, partnered to create a program for high school seniors to take classes in the high-demand field of composites manufacturing. The program has gained accolades for its ability to pair soon-to-be high school graduates with local in-demand jobs.

Republican Gov. Chris Sununu said in his State of the State address this month that he wants to create a "New Hampshire Career Academy" in order for high school students to gain associates degrees in high-demand fields before their graduation.

Looking at both the earlier and later ends of the school spectrum, nearly 51 percent of eligible New Hampshire children enroll in preschool. And 60 percent of young adults go on to postsecondary education.

But New Hampshire also struggles with social issues including an opioid crisis that's led to fractured home lives and problems such as students missing time in school. And its population has declined as many students leave the state after high school, as in many other Northeastern states.

Connecticut (B-plus): Connecticut has long been known for its wealthy enclaves: 49 percent of its adults have two- or four-year postsecondary degrees, 61 percent of its adults have an income at or above the national median, and 72 percent of its adults have steady employment.

That means its student body on average is less transient, and there are fewer schools with concentrated poverty that can overwhelm school officials. The state spends on average \$17,000 per student, \$5,000 more than the average state.

But that money is often not spent in equitable and efficient ways. In a 2016 ruling, a superior court judge issued a sweeping condemnation of the state's teacher-quality standards, special education spending, and the dwindling academic performance of the state's poor, black, and Hispanic students.

That ruling was struck down by the state supreme court early in 2018, but politicians, including Democratic Gov. Ned Lamont, have promised to address many of the concerns raised in the ruling.

Minnesota (B-plus): Despite being mostly rural and situated far from the top-ranking states in the Northeast, Minnesota ranks as the fifth-best state to raise a child.

Many attribute Minnesota's standout performance over the years to the state's consistently high standards, stable leadership at the state's department of education, and a heavy focus on teacher quality.

Stable governance models, consistent leadership, and high expectations can bode well for children's future. The most-recent statistics show that 46 percent of Minnesota 8th graders performed proficient on the NAEP math exam, helping to keep the state among this year's top Chance for Success rankings.

But Minnesota has long struggled to close the performance gap between its wealthier white students and its growing number of poor black, Latino, and immigrant students.

And on the leadership front, the state is in for a shakeup: Newly elected Democratic Gov. Tim Walz recently replaced the state's longtime state chief, Brenda Cassellius, who had been in office for eight years, with Mary Cathryn Ricker, the former vice president of the American Federation of Teachers.

Is Geography Destiny? The Debate Over Boosting K-12 Quality

By [Andrew Ujifusa](#)

January 15, 2019

Politicians, educators, and parents believe and say all kinds of things about schools. But it's hard to find people in the public sphere who will eagerly proclaim that the quality of students' education should be determined by where they live and their socioeconomic status. [Back to Story](#)

In fact, if you glance through speeches and articles about education in America, it's easy to find statements declaring the opposite.

They come from Hillary Clinton, who said during her 2016 presidential campaign: "I am committed to making sure every child in this country receives a world-class education with good schools and good teachers no matter what ZIP Code they live in."

They come from U.S. Secretary of Education Betsy DeVos, whose boss defeated Clinton in the race for the White House: "No child, regardless of their ZIP code or family income, should be denied access to quality education."

They come from pretty much all quarters.

What might explain the pervasiveness of this sentiment is the belief that things like ZIP codes and household income often have an outsized impact on not just the type of education children receive, but their outcomes later in life.

In Massachusetts, which has the highest grade on *Quality Counts'* Chance-for-Success Index, 73 percent of children live in household incomes of at least 200 percent of the federal poverty level. Yet in New Mexico, which has the lowest grade, just 48 percent of children fit that description.

Seeing a Connection

It's easy to see a connection between those childhood numbers and outcomes later in life: In Massachusetts, 65 percent of adults ages 25 to 64 earn an income at or above the national median, while in New Mexico, just 45 percent of adults reach that benchmark.

It's virtually incomprehensible to most people that a wealthy community could or would have bad schools, said Michael Griffith, a principal contractor with the Education Commission of the States who studies school finance.



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"What they are receiving would look, to a lot of outsiders, almost like a private education" in their public schools, Griffith said.

Yet there's no universally agreed-upon set of solutions to this challenge. Two large (though not totally mutually exclusive) camps have arisen.

Some analysts and advocates say that fixing huge disparities in school spending, and boosting that spending on a broad basis, is the key to breaking the "ZIP code education" dynamic.

Others, however, say that rather than pushing more resources into certain ZIP codes, the real solution is to allow students to leave those areas to pursue a better education. This can involve everything from open enrollment in public schools to vouchers and virtual education.

A complex and politically challenging issue at the heart of these disputes, Griffith said, is the dual-engine system for funding schools, in which one engine is often not in sync with the other.

State and local funding each typically make up about 45 percent of total spending on public schools. Wealthy communities paying relatively high local property taxes ultimately expect those taxes to benefit local schools. Creating a system that blunts or disappoints that expectation is difficult at best.

In many cases, that leaves decisionmakers with the option of creating new systems for state funding that direct more resources to students from low-income households and English-language learners who have greater educational needs.

Some states, like New Mexico, have pushed hard in recent years for just such an approach, Griffith said. And due to a requirement in the **Every Student Succeeds Act** that districts publish how much individual schools spend per student, communities might soon be able to ask tough, more-informed questions about funding disparities between schools not too distant from each other.

Bringing equity to state school funding is a complex process that involves trade-offs, he stressed, but it can be done. Even then, he said, "You're going to have differences because there are differences in local resources."

'Not God-Given'

So to what extent is such an approach worth it? And to what extent is a fundamentally different approach to ZIP codes best?

In states like New Jersey and Massachusetts, policymakers (sometimes at the direction of the courts) have not just invested more money in education. Leaders have worked to see that the additional money is equitable and goes toward important classroom resources, such as a strong curriculum and a well-trained teacher, said Linda Darling-Hammond, the president and CEO of the Learning Policy Institute, a nonprofit research group that focuses on teacher quality and early learning.

"You have to think about: How do you spend that money? It's not just throwing money at schools," Darling-Hammond said.

At the same time, a successful state like Massachusetts can use school choice to promote innovation, but also place strong regulations and accountability measures around a limited number of such schools, she added.

Since the 1970s, she stressed, the nation has retreated from more sweeping federal pushes to reduce poverty (such as President Lyndon B. Johnson's Great Society programs). To reverse the growing racial and socioeconomic segregation in schools, she said, requires that kind of holistic approach that also takes schools' needs into account.

"It's not God-given that it has to be this way," Darling-Hammond said.

Different Approaches

Others argue that, ultimately, such protections and solutions imposed through traditional government channels shield the system, but hurt students. They have their own success stories to share.

The popularity of Florida's varied school choice programs, such as open enrollment systems, private-school scholarships, and education savings account, and the state's successes on the most recent National Assessment of Educational Progress (including its students from low-income households) testify to choice's political and educational viability, said Tori Bell, a policy analyst at the Foundation for Excellence in Education, a nonprofit research group that supports vouchers and other forms of school choice.

"Resources are important, but there's a limit to what you can do. An endless supply of money doesn't solve some of the nitty-gritty issues that these students face on the daily basis," Bell said.

Choice itself is not a panacea, she stressed. But she said the popularity of such programs shows that changing state-run systems is slow and difficult, even as children from disadvantaged backgrounds stagnate in traditional public schools. One way to reduce or nullify the power of zoned attendance areas and resource-poor schools is to give people the chance to escape them, Bell said.

"Once families have access to that choice and their students are receiving an educational opportunity that best meets their needs, they wouldn't want to go back to a system that's one size fits all," Bell said.

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Published in Print: January 16, 2019, as '**ZIP Code**' Tyranny Drives K-12 Debate

What's Behind the Grades and Scores?

A user's guide to the Chance-for-Success Index

January 15, 2019

Quality Counts grades all 50 states and the nation on the Chance-for-Success Index, which gives a snapshot of a person's prospect of successful outcomes over a lifetime, from early childhood to adulthood and the working world.

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But what's behind those top-line numbers and letter grades? Here's how it's done:

- The Education Week Research Center collects the most recently available federal data from the U.S. Census Bureau, the National Assessment of Education Progress, the U.S. Department of Education, and other sources to get a more-detailed portrait of how people are likely to fare from their earliest years through adulthood.
- The states are scored and graded on 13 separate indicators. Four of them deal with conditions related to early childhood that can make a big difference in the years before formal schooling. Six others focus on formal education from preschool through the college years. And another three offer a snapshot of adult outcomes, completing the cradle-to-career trajectory.
- All these calculations then are blended for each state's final A-F grade and numerical score.

Here's a quick and easy guide to the grading scale and each of the 13 indicators that make up the Chance for Success grade. (Additional technical details are available on the [Sources and Notes page](#).)

The Grading Scale

Each state receives a numerical score for each of the indicator categories. After rounding scores to the closest whole-number values, we assign letter grades based on a conventional A-F grading scale, as follows:

A = 93 to 100

A-minus = 90 to 92

B-plus = 87 to 89

B = 83 to 86

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B-minus = 80 to 82

C-plus = 77 to 79

C = 73 to 76

C-minus = 70 to 72

D-plus = 67 to 69

D = 63 to 66

D-minus = 60 to 62

F = Below 60



Early Foundations

- **Family Income:** Percent of dependent children (under 18 years of age) in families that are above low income. Low income is defined as 200 percent of the federal poverty level, which depends on the size and composition of the family.
- **Parent Education:** Percent of dependent children with at least one parent who holds a two- or four-year postsecondary degree.
- **Parental Employment:** Percent of dependent children with at least one parent who is steadily employed, defined as working full time (at least 35 hours per week) and year-round (at least 50 weeks during the previous year). Those not in the labor force are excluded from calculations. Active-duty military service is considered participation in the labor force.
- **Linguistic Integration:** Percent of dependent children whose parents are fluent speakers of English. Fluency is defined as being a native speaker or speaking the language "very well." All resident parents must be fluent in English for a family to be considered linguistically integrated.



School Years

- **Preschool Enrollment:** Percent of 3- and 4-year-olds who are attending preschool, based on a three-year average. Both public and private education programs are counted.
- **Kindergarten Enrollment:** Percent of eligible children attending public or private kindergarten programs, based on a three-year average. The size of the entering kindergarten cohort is calculated based on the number of 5- and 6-year-olds in a state.

- **Elementary Reading Achievement:** Percent of 4th graders in public schools who scored at or above the "proficient" level in reading on the 2017 NAEP, known as "the Nation's Report Card."
- **Middle School Mathematics Achievement:** Percent of 8th graders in public schools who scored at or above the proficient level in mathematics on the 2017 NAEP.
- **High School Graduation Rate:** Percent of public high school students who graduated on time with a standard diploma for the 2015-16 school year.
- **Young-Adult Education:** Percent of young adults (ages 18 to 24) who either are currently enrolled in a postsecondary education program or have already earned a postsecondary credential. Those still enrolled in high school programs are excluded from the calculation.



- **Adult Educational Attainment:** Percent of adults (ages 25 to 64) who have earned a postsecondary degree. Calculations include all individuals whose highest level of attained education is an associate, bachelor's, graduate, or professional degree.
- **Annual Income:** Percent of adults (ages 25 to 64) whose annual personal income reaches or exceeds the national median (\$40,448 in 2017 dollars). Only individuals in the labor force are included in calculations.
- **Steady Employment:** Percent of adults (ages 25 to 64) who are steadily employed, defined as working full time (at least 35 hours per week) and year-round (at least 50 weeks during the previous year). Those not in the labor force are excluded from calculations. Active-duty military service is considered participation in the labor force.

Source: Education Week Research Center, 2019

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Published in Print: January 16, 2019, as **What's Behind the Grades and Scores?**

The Charleston *Post & Courier* Special Report, “Minimally Adequate: Apathy, segregation and disparities hold South Carolina’s schools back” can be found here:

https://www.postandcourier.com/news/minimally_adequate/