

EDUCATOR DEVELOPMENT IN LITERACY EDUCATION: THE INFLUENCE OF SOUTH CAROLINA READING POLICIES

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Abstract

This sequential explanatory mixed-methods study investigates the impact of the Language Essentials for Teachers of Reading and Spelling (LETRS) professional learning intervention on teacher knowledge within the framework of South Carolina's reading policy. Quantitative analysis of pre- and post-assessment data reveals significant improvements in teachers' content knowledge of foundational literacy skills following LETRS training. Descriptive statistics and paired-samples t-tests indicate notable gains, particularly in Volume 1 of the LETRS curriculum. The findings demonstrate substantial increases in assessment scores, underscoring the effectiveness of LETRS in enhancing teacher expertise. Qualitative insights from focus groups further highlight the positive influence of LETRS on teacher knowledge and instructional practices. Stakeholders at multiple levels recognize LETRS as a valuable tool for improving literacy instruction, citing a deeper understanding of foundational reading skills and observable enhancements in student performance. However, challenges such as limited structured time for training and the need for aligned instructional resources are identified as barriers to effective implementation. Policy implications emphasize the necessity of integrating the science of reading into state initiatives, addressing implementation barriers, and incorporating LETRS into teacher preparation. Practical recommendations include allocating dedicated time for LETRS training, and aligning instructional resources with its principles. Future research should examine the relationship between LETRS training and classroom practice, assess its impact on student outcomes, and contribute to the broader discussion on statewide implementation. This study provides valuable insights into the role of LETRS in strengthening teacher knowledge and advancing literacy education in South Carolina.

Keywords

Mixed Method, LETRS, Read To Succeed, SC Ready, Leadership

Introduction

South Carolina has historically ranked among the lowest-performing states in reading proficiency (NCES, 2022). In response to persistent literacy challenges, the South Carolina General Assembly enacted the Read to Succeed Act of 2014 (R2S) (S.C. Code Ann. § 59-155, 2014), a comprehensive legislative initiative designed to improve student reading achievement through systemic reforms. The legislation sought to transform literacy instruction and student outcomes by implementing:

- 1 State, district, and school reading plans
- 2 Expanded access to state-funded, full-day prekindergarten for students in poverty
- 3 Mandatory reading interventions for students at risk of not meeting English Language Arts (ELA) proficiency standards
- 4 Third-grade promotion standards tied to reading proficiency
- 5 Summer reading camps
- 6 Literacy coaches in every elementary school

- 7 Revised teacher preparation requirements
- 8 Mandatory literacy coursework for in-service educators

Despite its ambitious scope, the implementation of R2S was met with resistance from educators and administrators. Critics argued that the policy was based on an overstated crisis in reading achievement, attributing poor literacy outcomes to broader socioeconomic conditions rather than instructional deficiencies (Thomas, 2017). Others focused on the controversial third-grade retention requirement, expressing concerns that retention would become the defining characteristic of R2S rather than a comprehensive literacy initiative (Bowers, 2020). As a result, implementation efforts were often procedural rather than substantive, with compliance mechanisms in place but limited transformation at the district and school levels.

Following the enactment of R2S, reading proficiency among South Carolina students has not demonstrated meaningful improvement. The SC READY English Language Arts (ELA) assessment, administered annually to students in grades three through eight, categorizes performance into four levels:

- 1 Does Not Meet (DNM): Indicates students are performing at least two years below grade level and require substantial academic support
- 2 Approaches: Suggests students require additional academic interventions and are not on track for college and career readiness

Despite ongoing implementation of R2S, the proportion of students scoring DNM or Approaches remains disproportionately high, indicating that a majority of students fail to meet grade-level expectations. Notably, these trends preceded the COVID-19 pandemic, challenging claims that recent declines in literacy achievement are solely attributable to pandemic-related disruptions.

Recognizing the stagnation of student reading achievement, South Carolina's newly appointed Superintendent of Education in 2023 identified early literacy as a policy priority (Newman, 2023). In collaboration with the South Carolina General Assembly, legislative efforts were initiated to amend R2S, culminating in S. 418 (2023), which sought to address key deficiencies in the original legislation through three primary reforms:

1. Emphasis on the Science of Reading
 - Replacing references to “research-based” instruction with “scientifically based” practices
 - Prohibiting the purchase of instructional materials incorporating the three-cueing system
 - Strengthening intervention requirements to align with evidence-based literacy practices
2. Teacher Preparation and Professional Development
 - Mandating structured literacy and foundational skills training for all certified early childhood, elementary, and special education teachers
 - Implementing a scientifically based assessment of foundational literacy skills for teacher certification candidates
3. Third-Grade Retention Policies
 - Requiring students scoring DNM on SC READY ELA to receive targeted interventions
 - Mandating retention for third-grade students who fail to meet revised proficiency benchmarks

Although S. 418 (2023) was not enacted during the 2023 legislative session, many of its provisions were temporarily implemented through Proviso 1A.73 in the South Carolina 2023-2024 Appropriations Bill. This proviso:

- 1 Prohibited state funding for instructional materials utilizing the three-cueing system
- 2 Directed the South Carolina Department of Education (SCDE) to provide foundational literacy training for K-3 educators
- 3 Required districts to document scientifically based interventions for first- and second-grade students projected to score DNM on SC READY ELA in third grade

In April 2024, the South Carolina General Assembly formally passed S. 418 (2023) as Act 114 of 2024, with its provisions set to take effect in the 2024-2025 academic year. This legislative shift signals a renewed commitment to literacy reform in South Carolina, with an increased focus on scientifically based reading instruction, educator preparation, and early intervention strategies.

Literature Review

South Carolina Educational Policy Governance Within the United States, “state governments are the constitutional center of U.S. education” policy (Cohen & Spillane, 1992, p. 5). Complicating this governance structure, states have delegated much of their authority to local school district subdivisions (Cohen & Spillane, 1992; Fuhrman &

Elmore, 1990). This delegation to the local level and distribution of decisionmaking authority of issues with immense import, such as school finance, the hiring of teachers, and the selection of curriculum, has resulted in significant variance among and within states within the United States (Chrispeels, 1997; Cohen & Spillane, 1992; McLaughlin, 1987).

South Carolina's educational governance landscape is vast and varied. At the state level, an Education Oversight Committee is responsible for school accountability and core content standards, with 17 members appointed by the leadership of the General Assembly and the Governor. The State Board of Education is responsible for educator certification and promulgation of regulations related to the overall instructional program, with 17 members appointed by the legislative delegation within a particular judicial circuit. South Carolina also has a democratically elected state superintendent of education. In the 2021-2022 school year, South Carolina also had 76 public school districts, including three public school charter authorizers, 1,198 public schools, 777,292 enrolled students, 59,829 school-based instructional staff, and an additional 6,510 professional instructional staff based in schools and district offices (SCDE, 2023).

Additionally, the South Carolina General Assembly has often leaned into its responsibility for comprehensive state education policy. It has asserted robust state-level education policies and established frameworks to improve educational outcomes for students. These initiatives include the Education Accountability Act (EAA) of 1998 and R2S (2014).

South Carolina's Education Accountability Act (EAA) of 1998

The Education Accountability Act (EAA) of 1998 established South Carolina's school accountability system, holding schools, districts, and the state responsible for student academic performance. This legislation reinforced the state's commitment to improving educational outcomes by creating the South Carolina Education Oversight Committee (EOC), a governing body comprising representatives from the education and business communities, the Governor's Office, the Superintendent of Education, and the state legislature.

A key provision of the EAA (1998) was the development of state content standards in English Language Arts (ELA), mathematics, science, and social studies, along with the implementation of aligned summative assessments for students in grades 3 through 8. To ensure transparency and accountability, the legislation also:

1. Established criteria for measuring school performance
2. Mandated annual school report cards
3. Implemented school ratings based on performance measures

Additionally, the EAA (1998) introduced state intervention models to support low-performing schools while providing incentives and rewards for high-performing schools. Recognizing the critical role of educators in improving student achievement, the legislation emphasized professional development for teachers and administrators to uphold high instructional standards.

In many respects, South Carolina's EAA (1998) served as a precursor to federal accountability mandates, including the No Child Left Behind Act (NCLB) of 2002. By establishing a state-driven system of academic standards, assessments, and accountability measures, the EAA (1998) laid the groundwork for subsequent federal policies aimed at improving student achievement and educational equity.

The Read to Succeed Act (2014) and Its Impact on Literacy in South Carolina

Despite the presence of both state and federal accountability systems—established through the Education Accountability Act (EAA) of 1998 and the No Child Left Behind Act (NCLB) of 2002—South Carolina's literacy rates remained below national averages (NCES, 2022). In response to persistent concerns regarding reading proficiency, the Read to Succeed Act (R2S) of 2014 was enacted as a comprehensive initiative aimed at ensuring all students develop a strong literacy foundation by the end of third grade. This legislation sought to enhance literacy instruction statewide, ultimately preparing students for college and career readiness while fundamentally reshaping the experiences of both students and educators. A key focus of R2S (2014) was early childhood education and student intervention. The legislation:

1. Expanded South Carolina's state-funded, full-day 4K programs for students living in poverty
2. Established universal literacy screening for kindergarten through second grade
3. Mandated research-based reading interventions for students identified as at risk of not meeting proficiency benchmarks
4. Introduced summer reading camps to provide additional instructional time for struggling readers
5. Implemented mandatory third-grade retention policies for students significantly below proficiency, with exceptions granted only under legislatively defined good-cause exemptions

Beyond student-focused initiatives, R2S (2014) also introduced systemic reforms aimed at strengthening educator effectiveness in literacy instruction. The law required:

1. Schools and districts to develop and implement research-based reading plans
2. The placement of a state-funded literacy coach in every South Carolina elementary school to provide job-embedded professional development
3. Revisions to educator preparation programs, mandating explicit coursework in reading instruction
4. SCDE-approved literacy coursework for in-service educators to ensure alignment with best practices in reading instruction

By integrating early intervention strategies, structured literacy instruction, and professional development initiatives, R2S (2014) aimed to transform South Carolina's literacy landscape. However, despite these extensive efforts, challenges in implementation and sustained impact on reading proficiency persist, necessitating continued evaluation and policy refinement.

School Accountability Models and Their Implications for Student Achievement

Federal and state school accountability systems have intensified public scrutiny of student achievement outcomes at individual schools, increasing pressure on the PK-12 education system to produce measurable results. While improving student achievement is an undeniably worthy objective, scholars have debated whether parents primarily evaluate school quality based on student performance metrics (Lubienski & Lubienski, 2006). Additionally, researchers have questioned whether accountability systems accurately capture school effectiveness, particularly in small schools with limited student populations (Carrier & Whaland, 2017; Ho, 2008). Given that accountability frameworks are the operational reality for schools, researchers have explored the optimal school contexts that foster student achievement (Diaz, 2008; Lubienski & Lubienski, 2006; Stewart, 2009).

School accountability models present inherent limitations, particularly in small and rural schools where data reporting challenges can skew assessments of performance. Ho (2008) critiques models that overemphasize the percentage of proficient students (PPS), arguing that such measures obscure broader student achievement trends by focusing disproportionately on students near proficiency thresholds while neglecting those with the greatest needs. This issue is exacerbated in small rural schools, where minimum aggregate and subgroup sizes often fail to meet reporting thresholds, leading to gaps in available performance data.

School accountability models define the landscape in which all schools operate, including those in rural settings. While limitations exist, particularly when minimum reporting thresholds are not met, researchers have explored strategies for making accountability data more meaningful (Carrier & Whaland, 2017). Some studies suggest that smaller schools may offer advantages in student achievement outcomes (Lubienski & Lubienski, 2006; Stewart, 2009), though the impact of school size must be considered alongside student demographics.

Methodology

This study employs a sequential explanatory mixed methods design (Creswell & Plano Clark, 2017; Tashakkori & Teddlie, 2003) to investigate the impact of the Language Essentials for Teachers of Reading and Spelling (LETRS) professional development program on teacher content knowledge. A mixed methods approach integrates both quantitative and qualitative data within a single study, allowing for a comprehensive analysis of policy implementation and its classroom-level effects. The rationale for this approach stems from the complexity of education policy implementation, where quantitative and qualitative methods, when used independently, may be insufficient to capture the full scope of systemic change (Tashakkori & Teddlie, 2003). By integrating both data types, this study provides a more holistic understanding of the relationship between policy mandates, professional development, and instructional practice.

This study follows a two-phase sequential explanatory design (Creswell & Plano Clark, 2017). In the first phase, quantitative data will be collected and analyzed to measure the effect of LETRS professional development on teacher content knowledge. Specifically, pre- and post-assessments will be used to determine gains in foundational literacy knowledge among participating educators.

In the second phase, qualitative data will be collected to further interpret and contextualize the quantitative findings. A semi-structured focus group interview will be conducted with state and district LETRS professional development implementers to explore their perspectives on implementation fidelity, challenges, and the perceived impact of LETRS training on teacher knowledge and instructional practices. This qualitative component will provide rich, contextual insights that extend beyond numerical gains, offering a deeper understanding of how and why LETRS professional development influences teacher learning and practice.

By employing a sequential explanatory design, this study ensures that quantitative results drive the qualitative inquiry, enabling a more nuanced interpretation of the impact of LETRS training within the broader landscape of South Carolina's literacy reform efforts.

LETRS Professional Learning as an Intervention

The LETRS (Language Essentials for Teachers of Reading and Spelling) professional learning program will serve as the intervention for this dissertation in practice. LETRS is a content-specific professional development system designed to translate the science of reading theory into classroom application and instructional practice. The program is delivered in two volumes, each comprising four units and totaling approximately 120 hours of content per volume. Typically, educators complete one volume per year, with the full course spanning two years.

LETRS content addresses key components of reading instruction, including phonological awareness, orthography, morphology, systematic phonics, vocabulary instruction, and the role of content knowledge in reading comprehension (Folsom et al., 2017). The program is delivered through a multimodal, self-paced approach, incorporating:

1. Online modules
2. A content textbook
3. Face-to-face professional learning sessions, facilitated by a LEXIA national trainer for each of the eight units (Folsom et al., 2017)

LETRS professional learning will be made available at no cost to eligible K-3 educators and one school administrator per participating school. Educators who successfully complete one volume of LETRS will receive a \$500 stipend, while those completing both Volumes 1 and 2 will earn a total of \$1,000. Additionally, successful completion of each volume satisfies all renewal credit requirements for educator recertification. Thus, educators who complete the entire LETRS professional learning course will simultaneously fulfill their recertification requirements and receive financial compensation for their participation.

The Research Site: South Carolina Elementary Schools

In the 2019-2020 school year, the SCDE's Office of Early Learning and Literacy (OELL) tiered South Carolina elementary schools and focused support on the Palmetto Literacy Project (PLP) schools. 222 PLP schools in 61 of South Carolina's 76 public school districts were identified based on the proportion of third-grade students scoring DNM on the 2019 SC READY ELA assessment (SCDE, 2021). Tier 2 PLP schools were identified because between 33 and 49 percent of third graders within the school scored DNM on ELA. Tier 3 PLP schools were identified as a result of 50 percent or more third graders within the school scoring DNM on the 2019 SC READY ELA assessment (SCDE, 2021). Comparatively, non-PLP schools averaged 19 percent of third graders scoring DNM on the 2019 SC READY ELA assessment (See Table 2.2).

Intervention

LETRS was implemented, piloted, and spread in three cycles across 202 Tier 2 and Tier 3 PLP schools by OELL as a means of support for literacy improvement. 20 Cycle 1 PLP schools began LETRS in August of 2021. In January 2022, an additional 41 PLP schools started the implementation of LETRS in Cycle 2. Finally, 154 PLP schools began LETRS implementation in Cycle 3 in August 2022 (See Table 1.1). As of March 2024, 15 schools identified as PLP have yet to start LETRS implementation. The LETRS professional learning was implemented by national trainers from LEXIA, and an OELL Literacy Specialist also supported each PLP school with instructional coaching and implementation support. A NIC was also established to support LETRS implementation at the school and district level.

Table 1.1

Palmetto Literacy Project (PLP) Schools by Implementation Cycle with Grade 3 ELA Scores

LETRS Cycle	2018-19		
	Number of Grade 3 DNM ELA Scores	Number of Grade 3 ELA Scores	Percentage
Cycle 1: 20 schools	502	1073	46.8%
Cycle 2: 41 schools	1118	2575	43.4%
Cycle 3: 154 schools	3599	8765	41.1%
Non PLP Schools	7802	41136	19.0%

In July 2023, the statewide scale and spread of LETRS professional development began per Proviso 1A.73. The SCDE invited districts to join a coalition of the willing by volunteering as a district, select schools, or teams of instructional coaches to participate in LETRS professional development. Statewide Cycle 1 launched in September

2023 and included 67 districts with at least one cohort of educators engaged in LETRS professional learning. Statewide Cycle 1 included 3,485 educators from non-PLP schools and 2,200 educators new to PLP schools. With the previous PLP Cycles and Statewide Cycle 1, 11,200 of approximately 24,000 eligible South Carolina educators will have begun LETRS professional learning in Fall 2023. As shown in Figure 2.2, approximately 12,800 eligible educators will begin in successive statewide cycles planned through the Fall of 2024.

The Role of Measurement in Improvement

Bryk et al. (2015) emphasize that improvement cannot take place without measurement. To achieve large-scale improvement, it is essential to measure different components of the system (Hinnant-Crawford, 2020). A mixed methods approach enables the collection and integration of both quantitative and qualitative data, capturing the complexity of the system (Creswell & Plano Clark, 2017). Moreover, practical measurement focuses on utilizing the data already being collected to drive improvements, ultimately contributing to addressing the core issues identified in the problem of practice (Hinnant-Crawford, 2020).

Quantitative Phase: Assessing the Impact of LETRS on Teacher Knowledge

For the first quantitative phase, an outcome measure will be utilized to quantify the impact of participation in LETRS professional development on teachers' knowledge of foundational reading skills. As part of the LETRS program, participants complete a 45-question pre-test before starting Volume 1, Unit 1. Upon completion of Volume 1, Unit 4, participants retake the same assessment as a post-test. For Volume 2, a 40-question pre-test is administered before beginning Volume 2, Unit 4, and the same assessment is used as a post-test after completing Volume 2, Unit 8. These assessments, designed by LEXIA, evaluate the participants' mastery of the course content and are conducted virtually within the online modules. The post-tests are not time-bound, but participants may only take them once. A certificate of completion is awarded if a participant scores 79% or below on the post-assessment, while a certificate of mastery is granted to those who achieve 80% or above.

Although the LETRS Volume Assessments are proprietary and the specific items and detailed information regarding their reliability and validity are not publicly available, an external evaluation by McREL International assessed these tests using a sample of over 780 educators (Ho, 2021). The evaluation showed that the Cronbach's alpha, a measure of reliability, was .81 for Volume 1 and .85 for Volume 2 tests. Additionally, the assessments demonstrated generally acceptable item discrimination, with most distractors being effective, indicating strong construct validity. Furthermore, the content of the LETRS assessments is similar to that outlined in Moats & Foorman (2003), which suggests continuity with established educational standards and practices. These findings indicate that the LETRS Volume Assessments are reliable and valid educational tools, despite the lack of public disclosure of detailed information.

Participant pre/post-volume assessment data has been collected as part of the administration of the LETRS professional learning PLP implementation, which is part of the statewide scale and spread of the program. As a practical measurement tool, it does not add to the administrative burden within the system (Hinnant-Crawford, 2020). However, the analysis of these results can illuminate pragmatic questions such as what works, for whom, and under what circumstances (Hinnant-Crawford, 2020, p. 146).

Qualitative Phase: Focus Groups with LETRS Implementers

For the second qualitative phase, a purposive sampling strategy will be employed to select teams for focus groups. A variety of LETRS professional learning implementers will be identified, ensuring representation from the state, district, and school levels. The focus groups will be structured as semi-structured interviews, providing flexibility while maintaining consistency across interviews. These groups will be conducted in group settings and moderated by an interviewer, allowing participants to build upon each other's answers. This dynamic will enable the collection of large amounts of data within a short period, making the process efficient while fostering interaction among participants (Asbury, 1995; Kitinger, 1995; Twohig & Putnam, 2002).

Results

The findings of this sequential explanatory mixed methods study of the impact of LETRS professional development on teacher knowledge will be provided in this section. In a sequential explanatory mixed methods study, quantitative data is collected and analyzed first; the qualitative data collection and analysis follow to explain or elaborate on the quantitative results (Creswell & Plano Clark, 2017; Tashakkori & Teddlie, 2003). In this study, the quantitative data quantified the impact of the LETRS professional development on teacher content knowledge. Then, qualitative focus groups using a semi-structured interview protocol were used with state, district, and school LETRS professional development implementers to provide context and a deeper understanding of the implementation and effect of LETRS professional development.

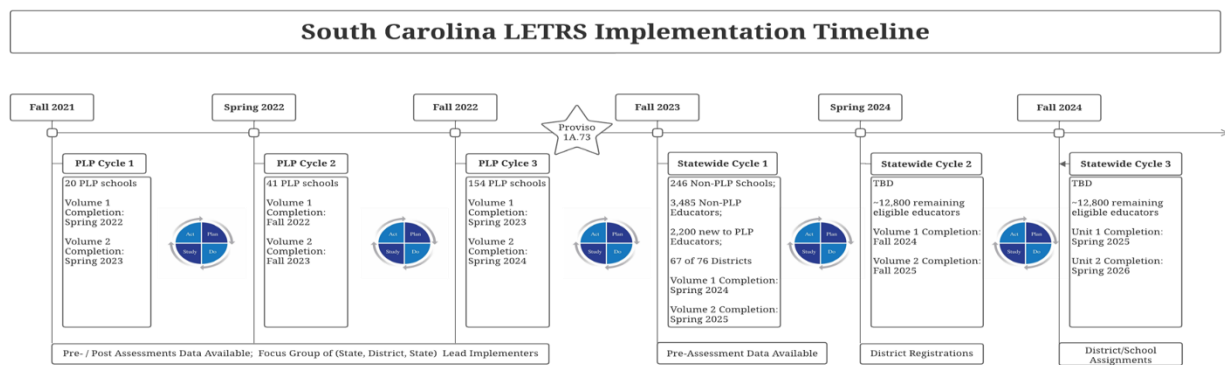


Figure 1.1 Timeline of South Carolina's LETRS Implementation

Descriptive Statistics

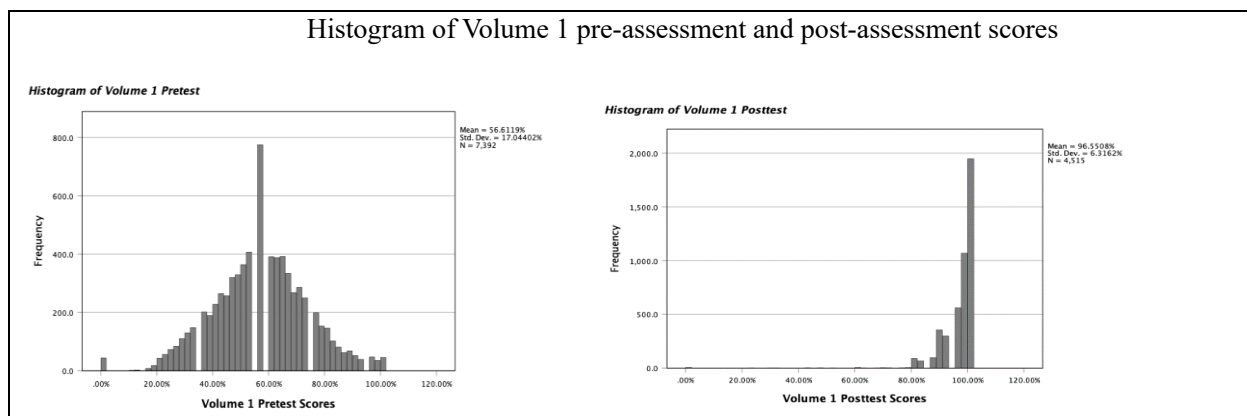
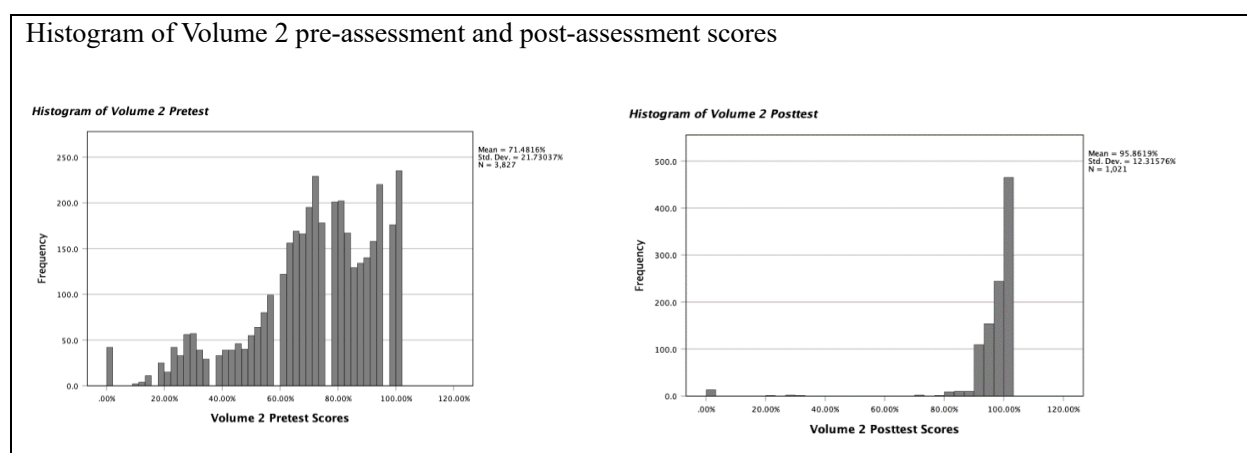
The dataset for this study includes 8,437 educators in 67 South Carolina public school districts who had been assigned a license for LETRS professional learning. Educators from PLP schools constitute 59.9% of the participants in the data set. The remaining participants are included in statewide implementation. The dataset for this study consists of 7,392 assessments on the Volume 1 pre-test. The number of completed assessments declines for each successive assessment, with only 1021 Volume 2 post-tests completed (see Table 1.2). This is a function of the gradual scale and spread of the LETRS intervention by cohort, as illustrated in Figure 1.1. All cohorts likely have a Volume 1 pre-assessment, except Statewide 2, scheduled to begin the LETRS implementation in Spring 2024. PLP 1, PLP 2, and PLP 3 cohorts should now have a Volume 1 post-assessment. PLP 1, PLP 2, and some PLP 3 Cohorts would have a Volume 2 pre-assessment, and only PLP 1 and PLP 2 cohorts are likely to have completed both volumes of LETRS and have a Volume 2 post-assessment.

Table 1.2

Frequencies of participants by implementation cohort and volume assessment

Participant Frequencies by Cohort and Volume Assessment					
Cohort	Total	Vol.1 Pretest	Vol.1 Posttest	Vol. 2 Pretest	Vol. 2. Posttest
	Count	Count	Count	Count	Count
PLP 1	347	345	320	289	273
PLP 2	917	912	768	709	464
PLP 3	3790	3769	3360	2792	273
Statewide 1	2432	2124	66	36	11
Statewide 2	951	242	1	1	0
Total	8437	7392	4515	3827	1021

Histograms of the pre- and post-volume assessments for Volumes 1 and 2 are provided in Figures 1.2 and 1.3. These illustrations demonstrate the distribution of assessment scores across all participants. The histogram of Volume 1 pre-test scores in Figure 1.2 depicts a wide range of scores with a generally normal distribution ($M = 56.61$, $SD = 17.04$). The scores mostly fall in the center, with the rest falling toward both extremes (Pallent, 2020). This score distribution indicates varied levels of initial knowledge among the participants. Conversely, the shape of the histogram of Volume 1 post-test scores in Figure 3.1 demonstrates an overall rightward shift towards higher scores ($M = 96.55$, $SD = 6.31$). This distribution of scores indicates that the intervention effectively increased teacher content knowledge. The histogram of Volume 1 posttest scores also depicts a narrower distribution, showing reduced performance variability between participants (Laerd Statistics, 2015).

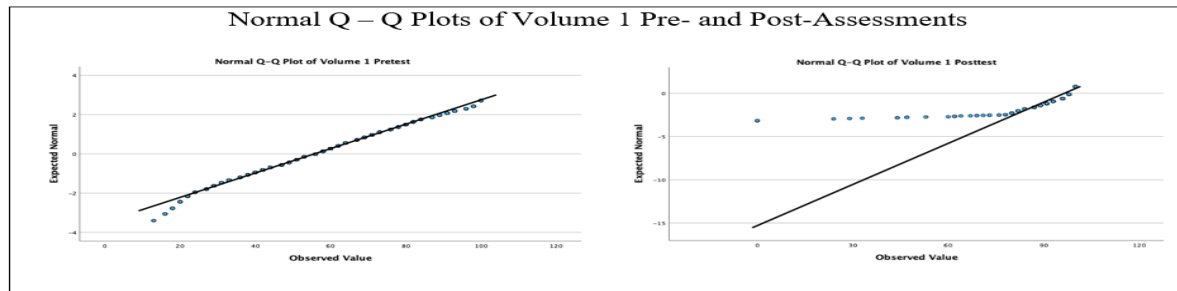
Figure 1.2**Figure 1.3**

Similarly, Figure 1.3 illustrates a histogram of Volume 2 pre and post-test scores for participants in all cohorts. The histogram of Volume 2 pre-test scores is less normally distributed than Volume 1 pre-test scores but maintains a wide range of participant scores ($M = 71.48$, $SD = 21.73$). There is a normal clustering of scores in the middle, but it also includes more scores in the higher extreme than Volume 1 pre-test scores. The shape of the histogram of Volume 2 post-test scores in Figure 3.2 depicts a shift towards higher participant scores ($M = 95.86$, $SD = 12.31$). The Volume 2 post-test score distribution indicates that teacher content knowledge increased after engaging in the LETRS professional learning. Moreover, the Histogram of Volume 1 pre-assessment and post-assessment scores 56 performance variability between participants narrowed significantly after the intervention, with clustering focused on a near-perfect score (Laerd Statistics, 2015).

In summary, comparing Volume 1 and 2 pre- and post-volume assessment histograms indicates shifts towards higher scores and reduced variability. This finding would suggest effective learning or acquisition of teacher content knowledge after the LETRS professional learning program intervention.

Quantitative Phase

A paired-samples t-test was used to determine whether there was a statistically significant mean difference between the Volume 1 pre-assessment scores compared to the Volume 1 post assessment scores. Outliers were detected from the end of the box in a boxplot on the Volume 1 post-assessment scores. Inspection of their values did not reveal them as inaccurate, and they were kept in the analysis. The assumption of normality was violated, as assessed by Shapiro-Wilkes's test (Volume 1 pretest: $p = .995$; Volume 1 posttest: $p = .514$). Because the sample size is greater than 50, the Normal Q – Q Plots were analyzed. The observed values on the Volume 1 Pretest Q – Q Plots were normally distributed. However, the observed values on the Volume 1 Posttest Q – Q Plots were not found to be normally distributed, with higher scores observed than predicted (See Figure 1.4). The assumption of normality was violated, but given the sample size, no scores were excluded from the paired-samples t-test

Normal Q – Q Plots of Volume 1 Pre- and Post-Assessments**Figure 1.4**

Participants scored higher in the Volume 1 post-assessment after participating in the LETRS professional learning ($M = 96.55$, $SD = 6.31$) as opposed to their score on the Volume 1 pre-assessment ($M = 55.73$, $SD = 17$), with a large effect and statistically significant mean increase of 40.81, 95% CI [40.33, 41.31], $t(4514) = 162.74$, $p < .001$, $d = 2.42$. This observed increase in teacher knowledge scores after Volume 1 of LETRS professional learning is not only of statistical significance but also has practical significance. An average increase of more than 40 points on the assessment represents a near doubling of content proficiency, with the average educator achieving a near-perfect score after the intervention of LETRS professional learning.

A paired-samples t-test was used to determine whether there was a statistically significant mean difference between the Volume 2 pre-assessment scores and the Volume 2 post-assessment scores. Outliers were detected from the end of the box in a boxplot on the Volume 2 post assessment scores. Inspection of their values did not reveal them as inaccurate, and they were kept in the analysis. The assumption of normality was violated, as assessed by Shapiro-Wilkes's test (Volume 2 pretest: $p = .923$; Volume 2 posttest: $p = .290$). The Normal Q-Q Plots were Normal Q – Q Plots of Volume 1 Pre- and Post-Assessments 59 analyzed because the sample size is greater than 50. The observed values on the Volume 2 Pretest Q – Q Plots were normally distributed. However, the observed values on the Volume 2 Posttest Q – Q Plots were not normally distributed, with scores above and below what was predicted (See Figure 3.3). The assumption of normality was violated, but no scores were excluded from the paired-samples t-test analysis, given the size of the sample.

The results of the paired-samples t-test demonstrated that participants scored higher in the Volume 2 post-assessment after participating in the LETRS professional learning ($M = 95.86$, $SD = 12.32$) as opposed to their score on the Volume 2 pre-assessment ($M = 73.92$, $SD = 20.82$), with a large effect and statistically significant mean increase of 21.94, 95% CI [20.49, 23.39], $t(1020) = 29.73$, $p < .001$, $d = .93$. The observed increase in teacher knowledge scores after Volume 2 of LETRS professional learning is not as large as that observed in Volume 1. However, the Volume 2 pre-test scores were also higher. Like with Volume 1, the change was of statistical significance and practical significance. Educators averaged an increase of more than 21 points on the assessment, with many educators achieving a near-perfect score after the intervention of LETRS professional learning.

A Kruskal-Wallis test was conducted to determine if there were differences in Volume 1 post-assessment scores between cohort groups: PLP 1 ($n = 320$), PLP 2 ($n = 768$), PLP 3 ($n = 3360$), and Statewide 1 ($n = 66$). Distributions of the Volume 1 post-assessment were similar for all groups, as assessed by visual inspection of a boxplot. Median Volume 1 post-assessment scores were statistically significantly different between the different cohort groups, $\chi^2(4) = 44.330$, $p < .001$. Subsequently, pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. Adjusted p-values are presented. This post hoc analysis revealed statistically significant differences in Volume 1 postassessment scores between PLP 1 ($Mdn = 98.00\%$, $SD = 7.99$, skewness = -3.086) ($p < .001$) and PLP 3 ($Mdn = 98.00\%$, $SD = 5.68$, skewness = -7.668) ($p < .001$) cohorts and between PLP 2 ($Mdn = 98.00\%$, $SD = 6.89$, skewness = -6.551) ($p < .001$) and PLP 3 ($Mdn = 98.00\%$, $SD = 5.68$, skewness = -7.668) ($p < .001$) cohorts, but not between any other group combinations.

Qualitative Phase: Focus Groups

The literacy specialists focus group reported that LETRS has been valuable to all participants: teachers, reading coaches, other instructional staff, school and district administrators, and even the literacy specialists. These focus group participants described LETRS as “invaluable,” “a good struggle,” “a very, very valuable experience,” and changing “my whole thinking about literacy instruction and the teaching of reading.” The literacy specialists report observing the 64 learning of LETRS being applied in classroom practice through the use of instructional strategies, like sound cards and Elkonin boxes, and assessments aligned with the science of reading.

The participants shared data indicating significant improvements in reading performance specific to their individual schools. One participant noted that after implementing LETRS, the percentage of students scoring DNM on the third grade SCREADY ELA exam decreased from 81% in 2019 to 45% in 2023. Participants reported Tier 3 schools moving to Tier 2 and even Tier 1 status. Other improvements noted were in special education, with

students now receiving more differentiated support and experiencing more success because LETRS has helped teachers identify specific areas where students struggle with reading. As a result, schools have shifted the methods for identifying students needing intervention and focus the intervention support on the student's specific reading needs rather than a one-size-fits-all approach.

The administrator focus group mainly reported that LETRS effectively increased teachers' knowledge of the science of reading and how children learn to read. It was noted that teachers better understood how to explicitly teach foundational reading skills, especially phonics and phonemic awareness. They also reported that teachers were equipped with instructional strategies they could immediately use to teach and support students. One focus group member remarked, "LETRS has provided us with an understanding of how to recognize and fill the gaps of our students." Participation in LETRS helped "teachers identify the 'why' behind curriculum shifts." 67 Many participants noted improved reading performance on SC READY ELA within the schools they served. One participant shared that the percentage of students scoring DNM on SC READY ELA decreased from 68% in 2019 to 39% in 2023. Another participant remarked that based on the improvements, his school would no longer be identified as a PLP school. This participant attributed the school's improvement to LETRS implementation.

The qualitative phase of the study consisted of conducting focus groups to gain insight into the implementation and impact of LETRS professional development. Two focus groups were formed: one included state literacy specialists who supported the implementation of LETRS in PLP schools and the statewide rollout; the other included district and school-based staff involved in LETRS implementation, representing a variety of school sizes, student demographics, student achievement levels, and urban/rural locations. The discussions revealed several key themes:

1. **Impact:** Participants across all focus groups emphasized the positive impact of LETRS on teacher knowledge and classroom practices. They reported an increased understanding of foundational reading skills and observed student reading performance improvements. LETRS was credited with providing teachers with practical strategies and tools for effective literacy instruction. Although some educators initially struggled to see the value of LETRS, they were still observed applying the strategies in their classrooms.
2. **Needed Support:** Participants highlighted the significant time investment required for LETRS professional learning and the importance of structured support to integrate LETRS knowledge into classroom practice effectively. They emphasized the necessity of providing teachers with dedicated time during the school day for LETRS activities and collaborative discussions. Additionally, the availability and alignment of instructional materials with LETRS content were crucial for successfully implementing the strategies taught in LETRS.

Discussion and Future Implications

Finding 1: Impact

Literacy is a fundamental civil right and serves as the foundation of lifelong academic and personal achievement. In South Carolina, the odds are often worse than a flip of a coin for whether a student meets ELA grade-level standards. Moreover, South Carolina's historical NAEP reading performance ranks near the bottom nationally compared to other states (NCES, 2022). In short, this problem of practice affirms that we're wasting time as educators in South Carolina if we're not addressing (il)literacy.

In this study, the quantitative data demonstrated the positive impact of the LETRS professional development on teacher content knowledge. Then, a qualitative phase with focus groups of multi-perspective stakeholders confirmed the effect of the LETRS intervention on teacher knowledge and classroom practice. Additionally, through analysis of stakeholders' reflections from diverse perches at the state, district, and school levels, the focus groups revealed the provision of time and lack of aligned instructional resources as inhibiting factors and the role of leadership as a facilitating factor of the LETRS professional development intervention.

Overall, the study's findings suggest the effectiveness of LETRS professional learning in enhancing educator content knowledge. In the first quantitative phase, LETRS professional learning pre- and post-volume assessments of educator knowledge of fundamental literacy skills were analyzed. The descriptive statistics suggest that teacher content knowledge of foundational literacy skills was positively impacted by participation in the LETRS professional learning intervention. The histograms of pre- and post-volume assessments for Volume 1 and Volume 2 demonstrated shifts towards higher scores and reduced variability in post-volume assessment scores compared to pre-volume assessment scores.

The focus groups corroborated this finding, with participants observing that educators struggled more with LETRS Volume 1 because it contained knowledge that was newer and more foreign to educators than the content of LETRS Volume 2. It was also noted that after this new learning in LETRS Volume 1, educators began to question current classroom practices and noticed the need for more alignment of their instructional materials with the science of reading and the instructional practices advocated by the LETRS intervention.

Most notably, the study's quantitative findings suggest gaps within teacher knowledge of foundational reading skills leveled across PLP cohorts and their statewide peers after participating in the LETRS intervention. A Kruskal-Wallis test comparing LETRS Volume 1 78 pre-assessment scores in the PLP cohorts and the Statewide cohort demonstrates statistically significant differences, indicating initial disparities in teacher knowledge in the state's elementary schools identified as low-performing (PLP) and those not identified as PLP (Statewide). The median scores on the assessments show that before the LETRS intervention, teachers in the PLP cohorts had a lower knowledge level than the Statewide cohort.

Focus group participants at the state, district and school levels emphasized the positive impact of LETRS on teacher knowledge and classroom practices. They reported an increased understanding of foundational reading skills and noted student reading performance improvements. LETRS was credited with providing teachers with practical strategies and tools for effective literacy instruction. Some educators initially struggled to see the value of LETRS, yet even these educators were observed applying the new knowledge in their classrooms. Instructional strategies cited in the focus groups observed in classroom practice included sound cards, Elkonin boxes, and assessments aligned with the science of reading. There were also examples provided of teachers being newly equipped with the skills and tools necessary to successfully teach children how to read, who before the LETRS intervention struggled to teach reading.

Finding 2: Needed Support

As new policy encounters individuals with historical experiences and knowledge that differ from newly desired practices, successful policy implementation must attend to a system orientation, address content and process, use networks of teachers, and focus on classroom practice (Cohen, 1990; McLaughlin, 1987). Without attending to policy implementation factors, the practical result may be a mix that is neither what was nor perhaps what was intended by the new policy (Cohen, 1990; McLaughlin, 1987).

The focus group discussions provided nuance and context for implementing LETRS across the state. The data analysis deepened the understanding of the impact of the LETRS intervention while revealing inhibiting factors within the system, such as needed support for the provision of additional time and aligned resources.

The focus group participants report requiring structured time within their workday to complete the LETRS modules and collaborative discussion. The administrators must schedule this time to ensure it is used effectively without contributing to teacher overload. Sites that have successfully implemented the LETRS professional learning intervention balance LETRS learning with other school and district initiatives, thereby reducing resistance that may occur when educators feel burdened by too many initiatives or after-hour requirements. The strategic scheduling of LETRS is key in fostering a supportive environment where teachers feel valued and can dedicate the necessary attention to their professional development.

The focus group discussion stressed the importance of high-quality instructional materials aligned with LETRS professional learning. Educators note the misalignment of current resources and the new learning during Volume 1 of LETRS. A disconnect between the LETRS training and the instructional materials available can hinder the application of the LETRS practices. Participants stressed the significance of having aligned 80 phonics programs, decodable readers, and instructional materials that support the principles of the science of reading. Such alignment facilitates the connecting and transferring of LETRS knowledge into classroom practice, allowing for an aligned and effective literacy framework. The support needed for the effective implementation of LETRS extends beyond professional development sessions; it involves the intentional planning of educators' time and the careful curation of instructional resources that align with a systematic approach to literacy instruction. This need for alignment with the science of reading was noted and a priority in evaluating and selecting high-quality instructional material in South Carolina's most recent state-level adoption process.

Implications for Policy

As states and districts ponder reading policy and enactment factors for improved outcomes and successful policy implementation, this research study provides several implications for consideration for policymakers.

A comprehensive understanding of the factors influencing policy implementation can lead to more effective enactment. It is relatively easy for policymakers to propose changes, but it is more difficult to implement those changes. To support success, new policy needs to have a comprehensive system focus, address both content and process, network teachers, and emphasize translation to classroom practice (McLaughlin, 1987). There should also be a balance between support for implementation and pressure to implement (McLaughlin, 1987). Finally, there should be a recognition that large changes require time for successful implementation (McDonnell & Weatherford, 2016; Tyack & Tobin, 1994). Each of these policy implementation factors is addressed in R2S and S.418, likely contributing to the success of South Carolina's policy enactment.

The science of reading is not a specific product or curriculum. It is a body of research providing a comprehensive framework for effective literacy instruction. It is essential to understand that the science of reading is not LETRS or any other specific product. There are other products and partners in the market aligned to the science of reading. There are many other products and vendors claiming the science of reading that are misaligned.

Discernment between the two is essential. Nevertheless, incorporating LETRS as a key component of state literacy initiatives could provide a standardized approach to improving teacher knowledge and practice grounded in the science of reading, which may positively influence student learning outcomes. LETRS has been shown in this study and other research as an effective tool for states looking to implement the science of reading-aligned initiatives.

Policymakers should consider addressing identified gaps in teacher knowledge upstream of classroom practice. Re-training teachers in the science of reading once in-service is costly and a far downstream response to a lack of fundamental knowledge necessary for successful literacy instruction. Instead, policy should consider improving and aligning the training pre-service teachers receive in educator preparation. Those seeking to become K-5 educators should enter the classroom with the knowledge to successfully teach reading because most students only receive one chance at learning a particular grade level content; the state should not have to pay for the knowledge twice – once in teacher loans and then again in required professional development to address a lack of teacher knowledge. Many have commented that there is so much learning necessary in educator preparation that there may not be space to include anything additional. This researcher would submit that a K-5 educator should, at the very least, be prepared to teach children to read on day one of their classroom practice. South Carolina's reading policy, via S. 418 (2023), addresses this concern by adding a requirement for pre-service educators graduating in early childhood, elementary, or special education in 2026 to successfully complete an assessment grounded in the science of reading before becoming initially certified. This policy attempts to incentivize higher education institutions to address these learning competencies in their pre-service coursework.

Implications for Practice

As LETRS professional learning continues to scale and spread toward statewide implementation in South Carolina, this research study provides several implications for practice.

For LETRS to be successfully embedded in educational practice, the provision of time is a necessary condition revealed by the finding of this study for consideration. School and district leaders must ensure teachers have allocated time within their daily schedules for LETRS learning. This means protected periods for engaging with LETRS modules, collaboration with peers, and integrating learned strategies into classroom instruction without encroaching on their personal time. Without careful consideration of teacher schedules and the provision of time within the school day, teachers are more likely to resist LETRS and become frustrated and overwhelmed by the LETRS initiative. This may result in an unintended consequence of increased teacher burnout.

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