



A Review of the Literature on
Language Essentials for Teachers of Reading
and Spelling (LETRS)



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TABLE OF CONTENTS

Introduction.....	1
Purpose and structure of this review	1
Science of Reading Overview	2
Five components of effective reading	2
The simple view of reading	3
The four-part processing model.....	3
Debate and commentary on the science of reading	4
Translating the science of reading into policy and practice.....	5
The Impact of LETRS	6
Scientific evidence on the impact of LETRS	6
Supplemental evidence.....	9
Conclusion	10
Strategies for supporting teacher success.....	11
Works Cited.....	12

INTRODUCTION

Language Essentials for Teachers of Reading and Spelling (LETRS) is a professional learning program for early childhood educators and administrators focused on early literacy and language foundations. Over a two-year period, participants engage in online units, face-to-face sessions, readings, and dedicated time to practice applying skills in the classroom, with learning measured by quizzes, tests, and document submission. Within Multnomah County, five districts have begun investing in LETRS training, including Portland Public Schools, Reynolds School District, David Douglas School District, Parkrose School District, and Centennial School District. In partnership with the Multnomah Education Service District (MESD), Portland Public Schools received funding from the Oregon Department of Education to support implementation of LETRS across these five districts, in addition to an independent study of LETRS implementation and outcomes. Ultimately, the study aims to provide information that supports state-level decisions about whether and how to invest in LETRS training statewide. Pacific Research and Evaluation was selected through a competitive bid process to complete the independent study, which includes in its scope the current literature review.

Purpose and structure of this review

The purpose of this comprehensive review is to summarize and interpret the current body of literature related to the utilization, implementation, and impact of LETRS training. This literature review provides information and background for the formative and summative evaluation of LETRS across the five identified school districts in MESD and will support the contextualization of findings at the end of the study period. To increase relevance and applicability to the five districts included in this study, this review focuses to the extent possible on literature produced in the past decade and involving schools in urban locations. Where available, this review highlights the findings and conclusions drawn from peer-reviewed empirical studies. However, as discussed further in the conclusion of this review, there is a paucity of empirical literature examining LETRS; therefore, recent scientific literature is supplemented by older works as well as other sources, including reports, press releases, and other non-peer-reviewed articles.

This review begins with an overview on the science of reading, including theories and seminal work that form the foundational principals of LETRS, as well as a brief summary of the longstanding debate known as the 'reading wars.' Next, findings related to the impact of LETRS are presented. This review concludes by considering limitations and future directions for research and evaluation, as well as the types of additional supports for teachers that may complement LETRS training.

SCIENCE OF READING OVERVIEW

Scientific inquiry into early reading development spans many decades and constitutes a vast and multi-faceted body of research, an important segment of which is summarized in the oft-cited National Reading Panel Report from the National Institute of Child Health and Human Development (NICHD, 2000). The NICHD report, which was used to inform the No Child Left Behind Act of 2001 and the Reading First initiative, identified five components of effective reading instruction that the authors found to be repeatedly supported by research findings.

Five components of effective reading

Since the publication of the NICHD report (2000) and the No Child Left Behind Act (2001), these five components have been increasingly referenced in articles and material related to professional development (PD) for teachers of reading (for example, see: Jiban, 2022; National Council on Reacher Quality, 2020; Learning Point, 2004). The components are listed below, along with examples of how they appear in classroom instruction (Jiban, 2022):

- ◆ **Phonemic awareness** – developing students’ understanding of the sounds made by spoken words
- ◆ **Phonics** – systematically mapping sounds of spoken words onto letters and letter combinations
- ◆ **Fluency** – providing extended reading practice to increase students’ reading efficiency and lower the effort involved in word identification so that more mental energy can be devoted to understanding the meaning of the text
- ◆ **Vocabulary** – including ongoing, long-term vocabulary instruction, and teaching vocabulary words prior to assigning reading in order to build students’ lexicons
- ◆ **Comprehension** – giving instruction that helps students develop their ability to construct reasonable and accurate meaning from text using background knowledge and context

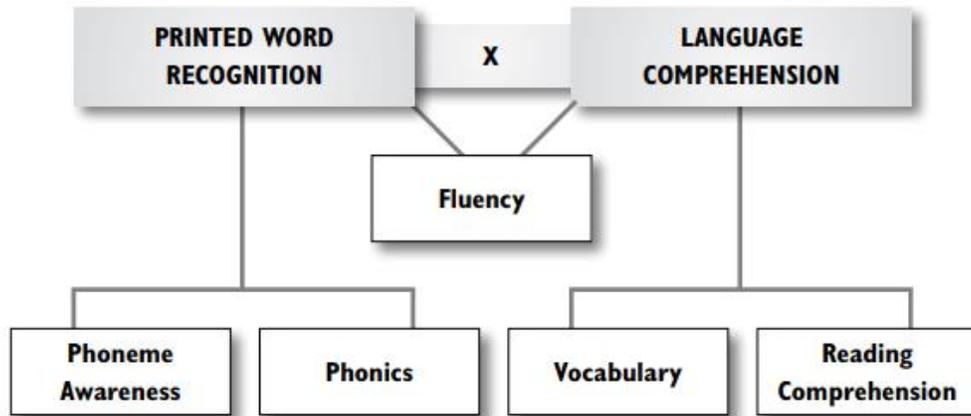
These five components have become the central hallmarks of what has been termed the science of reading. More research released since the NICHD report has continued to point to the importance of these five factors in students’ reading achievement (e.g., see McCutchen et al., 2009). Taken together, there is a strong body of evidence for their significance.

Much of the research supporting these components rests on several theoretical models that emphasize the importance of phonics in the development of literacy skills. Two of the most influential models (the simple view of reading, and the four-part processing model) are outlined below and covered extensively in the first module of the LETRS training (Moats, 2009).

The simple view of reading

The simple view of reading model describes reading as the product of decoding and comprehending printed words (Gough & Tunmer, 1986). Figure 1 appears in the LETRS training material and depicts how the five reading components described above map onto the two domains of the simple view of reading.

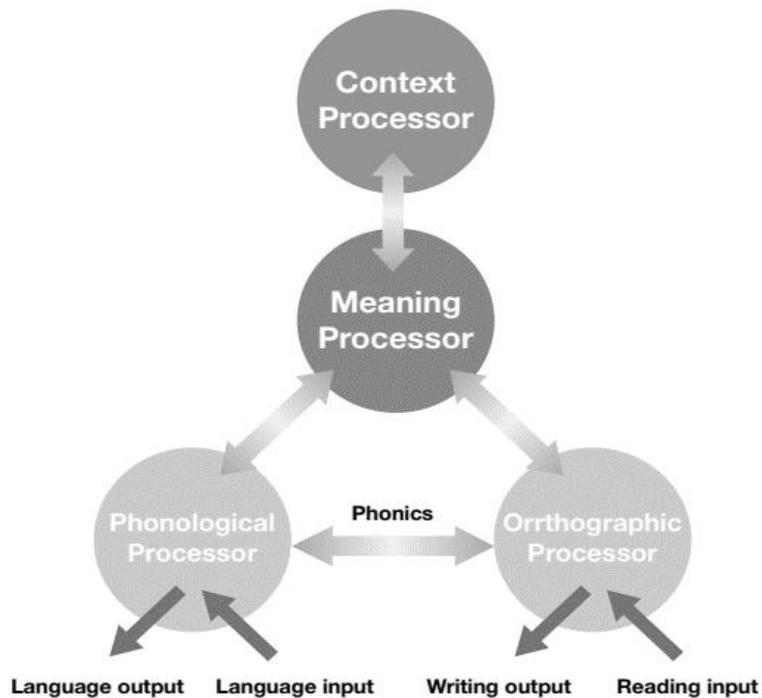
Figure 1. Two Domains and Five Components of Reading, from LETRS Module 1, 2nd Edition



The four-part processing model

Another model that often arises in discourse on the science of reading is Seidenberg and McClelland's (1989) four-part processing model (Figure 2), which describes the brain-processing systems involved in word recognition. The LETRS program extensively emphasizes the components of this model and explicitly focuses a number of its training modules on these processing systems as they relate to teaching and reading development. Moats explains that most reading disorders, including dyslexia, originate with a language processing weakness; therefore, providing teachers with the skills to identify and help students with processing challenges may be an important early intervention strategy (Moats, 2019).

Figure 2. The four-part processing model for word recognition, from LETRS Module 1, 2nd Edition



Debate and commentary on the science of reading

The term 'science of reading' has long been closely associated with phonics and decoding (or using phonics awareness to sound out words), as far back as the 1830s (Shanahan, 2020). The debate over the science of reading is, at its core, a debate over how much or if phonics and decoding should be explicitly taught to emerging and early readers (Castles et al., 2018). Proponents of the argument opposite of science of reading support approaches that, to varying degrees, deemphasize phonics. For example, the whole language approach stresses the importance of repeated exposure to words and literacy-rich environments when it comes to reading development, and the value of reading comprehension at the text-level above and beyond the word-level (Goodman, 1967; Smith & Goodman, 1971). Whole language theorists suggest that reading is the result of a three-part cueing system in which readers take cues from context (e.g., surrounding words or sentence structure) as well as letter-sound knowledge to help them identify words, at times using some degree of guesswork (Watson, 1989; Smith, 2012).

While whole language and cueing-based reading approaches generally support some level of phonics instruction, they tend to be less systematically incorporated into lessons—a key crux of the debate over the science of reading (Semingson & Kerns, 2021). However, as LETRS founder Louisa Moats (2020) and other science of reading advocates assert, there is a preponderance of evidence to suggest that students who receive systematic phonics instruction learn to read

faster, more fluently, and with higher comprehension compared to students who do not (Dehaene, 2011; Ehri et al., 2001; NICHD, 2000). For them, it is 'settled science,' and the debate is over.

Translating the science of reading into policy and practice

Unfortunately, some highly publicized attempts to translate this body of research into policies and practice have not been as well executed or as effective as hoped. For example, the No Child Left Behind Act of 2001 has been widely criticized for the constraints it put on teachers' ability to make use of their individual expertise and creativity, pushing them instead to 'teach to the tests' and to use scripted, drill-oriented instructional methods, which many teachers perceived to have a negative impact on students' motivation to read and write (Powell et al., 2009).

Perhaps most discouraging is that, despite the collective interest in improving literacy among school-aged children, and the investment of a great deal of resources and time, reading proficiency has remained stagnant and even declined in many states (US Department of Education, 2019). According to 2019 reading assessment data from the US Department of Education, only 35% of fourth graders and 34% of eighth graders were proficient readers. In 17 states, reading proficiency for fourth graders significantly decreased between 2017 and 2019. Only one state, Mississippi, saw significant reading improvement among fourth graders in that same period (US Department of Education, 2019). Notably, teachers in Mississippi have been receiving universal LETRS training since 2014, thanks to a science of reading bill passed by state legislatures the previous year (Mississippi Department of Education, 2021). Additional information and data from this statewide implementation are included in the Impact of LETRS section that begins on the next page of this review.

Promoters of reading reform today call for more teacher autonomy, combined with PD that supports teachers in gaining the science-based knowledge that they need to more effectively teach reading (Moats, 2020). While traditional teacher education programs (i.e., undergraduate and graduate programs for teachers) have begun adopting more coursework that aligns with the science of reading, it remains far from a universal practice among institutions (National Council on Teacher Quality, 2020), and does little to address gaps in veteran teacher knowledge. For years, experts have been warning that the majority of teacher preparation programs do not thoroughly prepare teachers to help students develop all of the essential skills for reading (Brady et al., 2009; Joshi et al., 2009a; Joshi et al., 2009b; Walsh et al., 2006). These apparent gaps in teacher education are a main focus of what LETRS (and other similar PD programs) aims to address (Hejtmanek, 2021).

THE IMPACT OF LETRS

As previously mentioned, the LETRS program is a PD program for teachers. LETRS is not a curriculum, but it is designed to provide teachers with the knowledge and skills to more successfully use curricula that are based on the science of reading in their classrooms. Teachers with more foundational reading and writing knowledge (e.g., regarding phoneme awareness, phonics, etc.) are more likely to instruct students on those essential foundational skills (Cunningham et al., 2004), which supports all developing readers, especially those who are struggling (McCutchen et al., 2009). Therefore, the intended impact of LETRS can be thought of in two general ways: the direct impact on teachers (e.g., their knowledge, confidence, or the ways in which they teach); and the indirect impact on students (most notably, their reading and writing achievement).

Scientific evidence on the impact of LETRS

This section presents research finding from two rigorous evaluations on the impact of the LETRS program. These studies stand out in the body of literature based on their specific focus on the LETRS training and its impact, as well as their use of research designs and methods that are scientifically founded. This review of the literature identified no other studies that met the same criterion.

Folsom et al., 2017

Overview of study & methods: In 2014 the Mississippi Department of Education began providing LETRS training to K-3 teachers using online modules and face-to-face workshops, and provided literacy coaches in target schools with the lowest reading achievement scores based on statewide assessments. This study examined changes in Mississippi teachers' knowledge and competency, quality of instruction, and student engagement with literacy instruction between winter 2014 and fall 2015. To measure these outcomes, the authors developed and validated an evaluation tool called the Teacher Knowledge of Early Literacy Skills (TKELS) survey, as well as a classroom observation tool called the Coach's Classroom Observation Tool (CCOT). The TKELS was administered by the Mississippi Department of Education to kindergarten through third grade teachers statewide at four timepoints between winter 2014 and fall 2015; it was completed by 7,638 individual teachers, 40% of whom completed the survey at multiple timepoints. The CCOT was administered at four timepoints between winter 2014 and spring 2015 by literacy coaches in target schools only; it was used to observe the classrooms of 316 teachers, 80% of whom were observed at multiple timepoints.

Outcomes - teacher knowledge: Findings revealed that teacher knowledge of early literacy skills increased between the first to the fourth timepoint, rising from an overall

score in the 48th percentile to the 59th percentile (based on a standardized distribution with an average of 50). Moreover, teachers who had completed the LETRS program were found to have significantly more knowledge of early literacy skills at the end of the study (ending in the 65th percentile) compared to teachers who had not yet started the LETRS program (this group scored in the 54th percentile at the final timepoint).

Outcomes – teacher competency & quality of instruction: Within target schools, average ratings of teacher competency increased between the first and the final timepoint, moving from the 30th percentile to the 44th percentile. Also within target schools, the average ratings of quality of early literacy instruction increased, rising from the 31st percentile to the 58th percentile. At the final study timepoint, teachers who had completed LETRS training were rated as significantly higher on competency and quality of instruction compared to teachers who had not yet started the training.

Outcomes – student engagement: Within target schools, average ratings of student engagement increased between the first and the final timepoint, from averaging in the 37th percentile to the 53rd percentile. At the final timepoint, student engagement was rated as significantly higher in the classrooms of teachers who had completed LETRS training, compared to those who had not yet started it.

Limitations: The authors acknowledge that the study design does not allow for causal inferences to be made. In other words, it is not known with certainty that the LETRS training or literacy coaching (versus other variables that were not controlled for) were the reasons that measured outcomes improved over the course of the study. The study also was not designed to take into account LETRS' impact on student reading or writing achievement outcomes.

Additional notes: Other sources have noted that Mississippi students' reading achievement increased more than any other state in the years since Mississippi teachers began widely receiving LETRS training (Hanford, 2019); however, these observations still do not offer causal evidence (Helms, 2021). It is also worth noting that in 2013 Mississippi was scoring much lower than other states for student reading proficiency, and the state's increase (which started trending upward even before 2013) has just begun to put them on par with national averages (Helms, 2021).

Garet et al., 2008

Overview of study & methods: This study assessed the impact of LETRS training and literacy coaching on second grade teachers' knowledge and instructional practices (based on the five components of reading from the NICHD report; 2000), and on their students' reading achievement. The sample consisted of 90 schools from six urban

school districts in low-income areas. Schools were randomly assigned to one of three treatment groups (treatment A, treatment B, and a control group). Schools in treatment A implemented LETRS training with second grade teachers in the 2005-2006 school year; treatment B schools implemented LETRS training plus literacy coaching for second grade teachers the same year; and the control group continued 'business as usual' by providing their district's standard PD to second grade teachers.

Teacher knowledge was measured after the PD implementation phase using the Reading Content and Practices Survey (RCPS), which the authors developed for this study. A classroom observation tool measured reading instructional practices. Reading scores from district assessment records from 2004 to 2007 were used to assess student reading outcomes. Across schools, a total of 270 second grade teachers participated in this study during the implementation year; during the follow-up year, 250 and 254 teachers participated in data collection during the fall and spring, respectively.

Outcomes - teacher knowledge: Teachers in both treatment groups A and B scored significantly higher on reading knowledge measured at the end of the implementation year (spring 2006) compared to teachers in the control group.

Outcomes - teacher instructional practice: Classroom observations revealed that teachers in both treatment groups A and B used significantly more explicit reading instruction related to phonemic awareness, phonics, fluency, vocabulary and comprehension. No significant differences were found between groups when it came to two other types of instructional practices (i.e., independent student activity instruction, and differentiated instruction).

Outcomes – student reading achievement: Based on student reading assessment data, the authors of this study found no significant difference between any of the treatment groups when it came to student reading achievement. This null finding held both when looking at student achievement during the implementation year, as well as the year following. Although there were no significant differences in student achievement between the treatment groups, the study did reveal a significant positive association overall between teacher knowledge and student achievement scores.

Limitations: The authors suggest that student mobility could have limited the ability of this study to uncover significant results related to student achievement. At the end of the implementation year, 17% of enrolled students were ones that had not been enrolled at the beginning of the school year, meaning that they did not receive a full year of instruction from the same teacher or within the same school.

Additional notes: The impact of the LETRS and coaching treatment on teacher knowledge is encouraging, particularly when considered alongside the finding that teacher knowledge was positively associated with student achievement. It is possible that the effect of LETRS and coaching on teacher knowledge was not large enough to result in significant student achievement outcomes. This interpretation of Garet et al.'s findings, if accurate, would suggest that LETRS and coaching-based PD might be especially beneficial for teachers who are less knowledgeable about one or more of the five key reading components.

Supplemental evidence

Several other reports and articles related to the impact of LETRS were identified during this review process but were determined to be less relevant to the current study than those outlined above. Articles from this supplemental body of evidence are briefly presented below.

Preskitt & Ernest, 2020

In 2018, Alabama began providing LETRS training to pre-K through third grade teachers. This non-peer reviewed evaluation report focused on the impacts of LETRS training in Alabama's pre-K classrooms. Findings indicated that LETRS-trained pre-K teachers had more positive teacher-child interactions and classroom quality (according to the CLASS, or Classroom Assessment Scoring System) compared to a national comparison group. The study also found that children in LETRS classrooms showed more progress toward kindergarten readiness from the beginning of the school year to the end compared to the progress made by children in non-LETRS classrooms.

North Carolina Department of Public Instruction, 2022

This recent press release compared student reading proficiency data from kindergarten, first grade, and second grade students in North Carolina (NC) to data from 1.6 million students in other states (measured on the same reading assessment). Results revealed that NC students in each target grade level began the 2021-2022 school year with lower reading proficiency compared to students in other states but ended the school year at or above the national average (these were observed differences, not tested for statistical significance). Kindergarten students in NC in particular made impressive reading gains. At the beginning of the school year only 27% of NC kindergarteners scored at or above the national reading proficiency benchmark (compared to 36% of kindergarteners in other states), but by the end of the school year 67% of NC kindergarteners were at or above the benchmark (compared to 60% of kindergarteners in other states). These notable improvements come just a year after NC passed related legislation and began providing LETRS training to elementary and pre-K teachers statewide (see Fofaria, 2022).

While promising, these results are observational and descriptive only and, as such, do not provide causal evidence of LETRS' impact.

Carlisle et al., 2009

This peer-reviewed study examined the relation between first through third grade teachers' knowledge about early reading with their students' improvement on word analysis and reading comprehension. Prior to the study, participating teachers received two types of PD, one of which was LETRS. This study did not differentiate the impact of one type of PD over the other on teacher knowledge. Teacher knowledge was assessed using the Language Reading Concepts test. Findings from this study regarding the association between teacher knowledge and student reading improvement were not significant. The authors suggest that a lack of alignment between the content of the LRC, the reading curriculums being used, and the assessment used to measure students' learning could have undermined their ability to find significance.

Carlisle & Berebitsky, 2009

This peer-reviewed study investigated the impact of literacy coaches on teacher and student outcomes. Teachers in this study were first grade teachers, all of whom received LETRS training the previous year. The study compared outcomes for 43 teachers who received literacy coach support to 33 teachers who did not. Looking at changes from beginning of the school year to the end, findings revealed greater improvement on word decoding for students of teachers with literacy coaches compared to those without. Results suggest benefits of a model of PD in reading that includes school-based coaching for teachers of first grade.

CONCLUSION

Overall, evidence for the impact of the LETRS training for teachers on their students' reading development is limited, but promising. Some results indicate that LETRS training increases teacher knowledge of core reading development processes and strategies (Folsom et al., 2017). Other studies have positively linked teacher knowledge in this domain with student reading achievement (Garet et al., 2008), although researchers investigating this association have not always established its significance (Carlisle et al., 2009).

Mississippi and North Carolina stand out as states that have implemented LETRS training widely and, soon after, recorded better than average improvements in students' reading proficiency scores (US Department of Education, 2019; Mississippi Department of Education, 2021; North Carolina Department of Public Instruction, 2022). However, the role of LETRS in those states'

student achievement results has yet to be empirically established. It is also worth noting that prior to implementing LETRS, Mississippi and North Carolina were performing far below national averages for elementary students' reading proficiency (Helms, 2021; Fofaria, 2021). Therefore, it is not clear that the same results could be expected in states where student reading proficiency is already closer to the national average, or in classrooms of teachers who are already knowledgeable about the science of reading.

As LETRS training for teachers and administrators becomes more widely implemented, studies examining its impact in classrooms and communities with a variety of characteristics will be important additions to this body of research. Also, it may be helpful for researchers to explore whether the effects of LETRS on teachers' knowledge and performance varies based on teachers' previous exposure to science of reading (i.e., especially as colleges and universities continue to add more of a focus in this area for teacher preparation). Along the same lines, research on the effectiveness of different elementary reading curriculums, the use of school-based literacy coaches, and other potential resources and supports may reveal useful strategies for promoting the success of LETRS.

Strategies for supporting teacher success

As LETRS implementation moves forward in Multnomah County, districts may want to consider additional strategies to support teacher success with the program. Fortunately, certain aspects of the LETRS program already align with expert suggestions for making PD successful, such as incorporating opportunities for reflection and active learning (Darling-Hammond et al., 2017). Another recommended component of LETRS includes coaching to support teachers; this strategy is echoed by experts in the field of effective PD practices (Darling-Hammond et al., 2017) and has been incorporated into the proposed implementation plan to support teachers in Multnomah County. Perhaps most importantly, teachers need adequate time to complete the program, connect their learning to their classroom lessons, and to discuss what they are learning with other teachers. A research brief from the National Comprehensive Center for Teacher Quality (Archibald et al., 2011) provides some guidance around how schools can make more time for teacher PD, including setting aside hours each week by adjusting the amount of time used for other tasks (e.g., teacher planning or staff meetings). Finally, school leadership can play an important role by demonstrating that they support, prioritize, and are committed to PD for teachers (Bredeson, 2000).

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