Accelerating Reading Growth in the Wake of the Pandemic: Research and Solutions

Michelle Storie, Ph.D.
michelle.storie@oswego.edu
Counseling and Psychological Services Department, State University of New York at Oswego, Oswego, NY, USA
ORCID ID: 0000-0002-9191-788X

Doreen L. Mazzye, Ph.D.
doreen.mazzye@oswego.edu
Department of Curriculum and Instruction, State University of New York at Oswego, Oswego, NY, USA
ORCID ID: 0000-0002-6070-7791

Lauren Guilds, B.A.
lguilds@oswego.edu
Counseling and Psychological Services Department, State University of New York at Oswego, Oswego, NY USA
Abstract:
Data is showing that student reading outcomes have been negatively impacted by the pandemic and corresponding disrupted learning. These findings highlight the need for an acceleration in evidence-based learning to foster stronger reading. The Science of Reading (SoR) provides a solution for effective and efficient pedagogy that is proven to produce significant gains in reading. Educational legislation is shifting to support the use of evidence-based approaches based on the SoR through policy changes including funding, professional development, and certification requirements. Districts are exploring innovative programs, such as 1:1 tutoring utilizing pre-service teachers and summer programming, to try to further accelerate learning gains. We recommend a concerted approach for stakeholders involving legislation, higher education, and districts to ensure that evidence-aligned instruction is being effectively used. Only with a unified approach incorporating all of these elements will we be able to counter the impact that the pandemic has had on the reading ability of our students.

Keywords: Science of Reading; literacy legislation; learning loss; accelerated learning

Recommended Citation: Storie, M., Mazzye, D.L., & Guilds, L. (2023). Accelerating reading growth in the wake of the pandemic: Research and solutions. East Carolina University Neurocognition Science Laboratory Research in Brief, 1(6).

Introduction
When we consider the crisis of student reading outcomes, caused in part from learning loss during the pandemic, the urgent question persists: what can schools do to accelerate students’ learning to read? National Association of Educational Progress (NAEP) (National Center for Education Statistics, 2022) scores emphasize a decline in reading rates in grades 3 and 8 from 2019. There was a three-point drop with an even greater decline for marginalized students, including students from economically disadvantaged backgrounds, English Language Learners, students with cultural and racial diversity, and individuals with disabilities (UNESCO, 2010). At the fourth grade level, the mean reading score was lower than all previous assessment years from 2005-2021. The assessment outcomes were not significantly different in comparison to 1992 (National Center for Education Statistics, 2022). Taken as a whole, the decline in reading scores impacted almost all races and income levels. Any progress that has been made in literacy score increases over the last few decades has been essentially erased, if not worsened. Many attribute these losses to interrupted instruction from the pandemic, which consisted of schools shifting to virtual instruction, a disparity in resources in different districts/states, and a loss of intervention services in order to minimize class size for social distancing. This was especially true for educationally marginalized students. According to Goldhaber et al. (2022) at the Harvard University Center for Educational Policy Research, Black and Hispanic students experienced a higher incidence of remote learning. The researchers stated that high poverty schools spent approximately 5.5 additional weeks in remote learning when compared to students from low- or mid-poverty schools.

Yet, some of the states are not seeing such dramatic learning losses as described above. For example, Louisiana, a state that had historically underperformed on prior state assessments, ranked first in the nation for growth among fourth-grade readers. This growth "outpaced national
trends in all four NAEP grades and subjects (Louisiana Department of Education, 2022).” Although the national average for fourth-grade reading declined two points in comparison to 2019 levels, Louisiana’s fourth grade test scores increased by two points, despite additional school interruptions due to two significant hurricanes that disrupted school beyond the pandemic.

In Mississippi, NAEP scores highlighted gains in fourth-grade reading despite national declines in reading and other subjects (Mississippi Department of Education, 2022). Findings show that fourth graders in Mississippi scored at the national average, and “economically disadvantaged 4th graders achieved higher scores in reading and math than their peers nationally and in the South. This achievement holds steady among black, white and Hispanic students living in poverty (Mississippi Department of Education, 2022).” In 2019, Mississippi’s fourth graders were found to make the highest amount of growth in reading and math from 2017 to 2019, which was attributed to increased academic standards along with corresponding assessments and investments in educator professional development.

**Science of Reading Definition**
What has contributed to the success of states such as Louisiana and Mississippi when the nation as a whole has seen an overall decline in reading performance? One of the factors likely contributing to the growth observed (or minimal reduction in scores) is changes in legislation that have begun incorporating Science of Reading (SoR) into legislation. According to The Reading League (2022),

> The science of reading is a vast, interdisciplinary body of scientifically-based research about reading and issues related to reading and writing. This research has been conducted over the last five decades across the world, and it is derived from thousands of studies conducted in multiple languages. The science of reading has culminated in a preponderance of evidence to inform how proficient reading and writing develop; why some have difficulty; and how we can most effectively assess and teach and, therefore, improve student outcomes through prevention of and intervention for reading difficulties (The Reading League [TRL], 2022).

This legislative movement to shift literacy instructional practices toward the SoR is sweeping across the country. The studies and data outcomes demonstrate that with systematic, explicit, cumulative, and diagnostic instruction on the major components of literacy (phonological awareness, phonics, vocabulary, fluency, comprehension, and writing), students are demonstrating greater rates of growth in reading. This expedited growth illuminates the effectiveness of the SoR, which serves as a protective factor against learning loss. The SoR also includes a more precise use of data to support a three-tiered approach to instruction and intervention that intensifies for students with greater instructional need (Spear-Swerling, 2022). The preponderance of evidence around the SoR, which is transforming student reading outcomes, is fostering legislative implications for education across the United States.

**Research Findings**
Implementation of teaching practices based on the SoR has resulted in significant improvements in student reading ability (Hall et al., 2022; National Institute of Child Health and Human Development, 2000). Learning Experience Design Research (Schechter et al., 2022) analyzed iReady Diagnostic Reading assessment data (Curriculumassociates.com, 2019) from 498 students in grades K-1. Participants received 95 Percent Group Portfolio instruction (95% Group, 2017), a systematic and explicit phonics/phonological awareness curriculum based on the SoR, across two school years between 2020-2022 in a school district in MD. This sample included 54% Black/African American students, 15% ELL students, 8% special education students, and 75% of students were considered to be at an economic disadvantage. The treatment group, who received the intervention using SoR practices, outperformed similar students who had typical reading instruction. Students with 2 years of intervention showed earlier growth and double the effect sizes of growth compared to comparison students with one year of use. This study indicates that it is necessary to persist in implementation over extended periods of time to produce greater reading outcomes for students.

Further, research (Mazzye et al., in press) suggests that it is possible to shift district-wide instructional practices to incorporate SoR findings into pedagogy. One 5-year longitudinal study used a non-random sample of all grade 1-5 students (n=434) enrolled in an urban public school district in the northeast United States. Through the study intervention, the district was immersed in professional development and coaching in the SoR and shifted to instructional and intervention practices aligned with the SoR. The district also revamped their data collection measures, analysis, and interpretation procedures. Findings demonstrated that oral reading fluency measures increased at a rate 3% above the growth rate of national pre-pandemic norms. It is even more noteworthy, given that, prior to the pandemic, the school district was performing below national norms. Further, students with disabilities (22%) and English Learners (14%) were included in the district sample, which was not accounted for in national norms. Additionally, 67% of the sample were economically disadvantaged. Results lend further support for applying the SoR as a protective factor to mitigate learning loss.

In addition, Conway & Hogan (2022) reported that, after training and professional development in the SoR, corresponding instructional shifts, and modifications to their data analysis processes, students made significant gains in phonemic awareness and oral reading fluency. It was reported that, in 2018-2019, 68% of students in grades K-3 met or exceed composite benchmark on DIBELS 8 literacy assessments. With the changes implemented, numbers of students meeting or exceeding composite benchmarks rose to 80% by the spring of 2022. This is significant given that these gains coincide with the pandemic and disrupted learning schedule.

Interventions with targeted subsets of students have yielded similar reading outcomes. For example, Sucena et al. (2022) implemented the Reading Skills Consolidating Program, which focuses on the promotion of letter-sound association, phonemic awareness, decoding, and spelling. The study was conducted with 446 below-grade-level second grade students, one-fourth of whom fell below the 10th percentile on baseline reading assessments. Higher socioeconomic (SES) students performed better on reading accuracy baseline assessments in comparison to lower SES students. The program was implemented over a five-week period. Post-test results revealed that the program had a significant, positive impact on students’ reading skills in both
socioeconomic groups of students, with a decrease of 19% of students falling below the 30th percentile in reading. Also noteworthy was that there were no longer statistically significant differences in children’s performance based on their SES.

Accelerated learning has also been demonstrated in brief (3-week) summer literacy programs. Contesse et al. (2021) evaluated the effects of an intensive summer reading intervention amongst elementary school-aged children. The UFLI Foundations (Lane & Contesse, 2022) program was used to systematically and explicitly teach foundational reading skills in a 1:1 format for one hour while the comparison group participated in a general summer program. Pre-service teachers were matched with 37 student participants performing below grade-level cut points. UFLI Foundations utilizes multisensory techniques and follows a structured scope and sequence through which prior learned skills are reviewed, students practice spelling, new concepts are introduced, and students read connected text. Results indicated that students who received the intervention performed significantly higher on all criterion-referenced and curriculum-based measures, though demonstrated lesser gain on standardized measures, which was potentially attributed to the shorter duration of intervention (Contesse et al., 2021). Findings lend support that significant reading gains can be evidenced in as short a period of time as fifteen hours with SoR-aligned interventions.

**Legislative Shifts**

Due to widespread increases in reading outcomes as districts are implementing SoR-based practices, states are beginning to enact legislation moving toward requiring training and SoR instructional shifts. Louisiana (2021) recently implemented Act No. 108, which requires early literacy professional development training for all K-3 teachers and administrators. This training is addressing foundational literacy skills instruction based on the SoR, targeting phonemic awareness, phonics, fluency, vocabulary, and comprehension. The state of Mississippi has a coaching program, and updated state laws to reflect the need for research-based instructional programming in phonemic awareness, phonics, fluency, vocabulary, and comprehension.

In North Carolina, for the 2022-2023 school year, legislation has funded the training of 25,770 educators in building their knowledge of the SoR through LETRS (Language Essentials for Teachers of Reading and Spelling) (Moats & Tolman, 2022). Further, there is state-level support offered through hiring 115 new literacy specialists for coaching and implementation of SoR-aligned instructional practices (Saunders, 2022). This financial commitment to teacher training and coaching is largely based on the gains observed in Mississippi. Pennsylvania, too, is making shifts to their teacher training. According to the State of Pennsylvania General Assembly House Bill 2045 (2022), “It is the intent of the General Assembly that teachers be equipped to facilitate high-quality reading instruction grounded in the SoR and intervention services to address student reading needs.” This bill has allocated significant state and federal funds (COVID-19 Relief), to provide professional development and coaching for teachers and interventionists to learn about and implement SoR practices.

Revamped legislation incorporating evidence-based practices has been adopted in Kentucky, Alabama, Arkansas, North Carolina, Pennsylvania, Oklahoma, North Dakota, Rhode Island, and Indiana (Schwartz, 2022). Some states have proposed summer reading camps (South Carolina) or
are providing resources/materials for out-of-school learning (Oklahoma) to optimize student learning and repetition of concepts. Additional states are requiring higher education teacher preparation programs to include coursework related to SoR and structured literacy.

**Implications for Practice**

While some states have shifted their reading practices, this is not universal yet the urgency for accelerated learning is imperative. McKeon (1995) defines accelerated learning as a multidimensional, brain-compatible teaching and learning methodology. This mode of instruction aims to provide students with an environment in which they learn specific skills related to reading and writing through explicit teacher modeling, guided practice with multiple opportunities for response and feedback, and independent practice which allows a demonstration of content mastery. This sequence of learning is instrumental in students’ ability to retain concepts more comprehensively and at an expedited rate. Allensworth and Schwartz (2020) posit that students will require high-dosage tutoring directly linked to classroom content, interventions providing extended learning time, effective data monitoring systems, and establishment of local norms to accelerate learning.

One way to establish local norms and create effective data management is through use of multi-tiered systems of support (MTSS). In this model, Tier 1 instruction provides all students with a structured literacy approach (Spear-Swerling, 2019) to learning reading and writing which includes explicit, systematic instruction with multiple opportunities for practice leading to independent proficiency with skills. If students do not achieve mastery of literacy skills with Tier 1 instruction, they should receive small group intensive instruction addressing the deficit skills in a second tier of instruction. A small number of students who are still struggling with reading acquisition should receive more intensive and individualized instruction (Tier 3) until mastery is achieved. This tiered approach requires data collection and analysis through benchmarking and progress monitoring to ensure that students are making adequate gains (Miciak & Fletcher, 2020; Fien et al., 2021). This specific approach requires implementers to carefully track student data on phonics, phonemic awareness, fluency, vocabulary, comprehension, and writing development. It allows for flexible groupings of students to expedite growth in individuals. Schools that have shifted to these SoR practices are reporting gains despite national reading trends, as previously described.

Since the pandemic has resulted in more global reading delays, it will be imperative that schools are utilizing their resources in effective and efficient manners to support student reading gains. Innovative practices, such as the summer reading study by Contesse et al. (2021) further illustrate how gains in reading can occur in brief durations of time with the proper types of instructional strategies. Another progressive application utilizes pre-service teachers who are trained in interventions to apply the SoR. This dual-pronged approach maximizes pre-service teachers’ own knowledge development while simultaneously increasing student reading outcomes. Evidence of this occurred in New York City, when in 2021, Dr. Katie Pace Miles led approximately 17,000 teacher candidates enrolled in 15 colleges across the CUNY (City University of New York) System to virtually tutor students 1:1 using a scripted intervention curriculum. There was a two-fold increase during the implementation of this strategy: teacher candidates grew in their knowledge of effective literacy instruction and students from New York...
City demonstrated increases in literacy outcomes (Miles, 2022). This streamlining of teacher preparation and opportunities for increased student achievement is a demonstration of novel means to accelerate learning on multiple levels.

In conclusion, the wake of the pandemic has called for acceleration in evidence-based learning to foster the greatest reading outcomes. The SoR provides a solution for effective and efficient pedagogy that is proven to foster significant gains compared to the status quo in reading instruction. Innovative practices, such as fidelity to a 3-tiered approach to instruction, 1:1 tutoring utilizing pre-service teachers, and summer programming could be utilized to further accelerate learning gains. Additionally, educational legislation can support this shift to the SoR through funding and certification requirements. Furthermore, teacher preparation programs should shift content and pedagogy requirements to embrace SoR. A concerted approach of the stakeholders is necessary at the state level with legislation, higher education level by effectively training pre-service teachers, and district level by equipping administrators and teachers with knowledge and skills backed by science. Only with a unified approach incorporating all of these elements will we be able to counter the impact that the pandemic has had on the education of our students.

REFERENCES


for all global monitoring report 2010: Reaching the marginalized. Paris: UNESCO.