



Introduction: teacher perception, self-efficacy and teacher knowledge relating to literacy

R. Malatesha Joshi¹ · Kausalai (Kay) Wijekumar¹

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Literacy skills—defined simply as reading and writing—are required to work successfully in the school as well as outside of school. However, in many of the countries and especially in the USA, lack of mastering literacy skills had harmful consequences for the individual which in turn can have damaging effects on the society and the nation. These negative effects of illiteracy have been shown by the fact that more than 50% of the adolescents with substance abuse problems and being on welfare systems have literacy problems. Further, 75% of students who dropout of high schools have reading problems and 85% of individuals in juvenile delinquent systems are functionally illiterate (Lyon, 2001). The positive aspect of being literate is demonstrated by the fact that when literacy instruction was provided in the juvenile delinquent system, there was only a 16% chance that they return back to the system; however, when literacy help is not provided, there is a 70% chance that will return to the system (Begin to read: <https://www.begintoread.com/research/literacystatistics.html>). It is hard to establish a cause and effect relationship between illiteracy and negative effects on the individual and the society, yet, these worrisome statistics has led the National Institutes of Health (NIH) to proclaim illiteracy a “national public health issue” (Lyon, 2001; McCardle & Chhabra, 2004). Considering the negative effects of illiteracy, the National Reading Panel (NRP, 2000) has outlined evidence-based practices based on empirical evidence on how to successfully teach foundational skills of literacy as well as upper level reading skills such as vocabulary and comprehension.

Despite the availability of explicit, systematic instructional procedures to improve reading skills, the reading levels of students in the USA have not progressed much during the past 25 years or so. According to the report of Nation’s Report Card (National Assessment of Educational Progress, NAEP, 2017), the reading levels of fourth and eighth grade students have been virtually unchanged with about one third of fourth grade students are not comprehending grade-level materials, and among minority and inner-city children, this

✉ R. Malatesha Joshi
mjoshi@tamu.edu

Kausalai (Kay) Wijekumar
k_wijekumar@tamu.edu

¹ College of Education and Human Development, Texas A and M University, College Station, TX 77845, USA

percentage may be as high as 66%. Various reasons such as poor oral language skills and socioeconomic status have been attributed to these dismal results. Additionally, classroom teachers being not familiar with systematic instruction may be an additional reason for this high percentage of illiteracy. As Snow, Burns, and Griffin (1998) noted, “quality classroom instruction in kindergarten and the primary grades is the single best weapon against reading failure” (p. 343). Further, Denton, Foorman, and Mathes (2003) demonstrated that effective instruction can “beat the odds.”

Since the seminal work of Moats (1994), who showed that many classroom teachers may not have a complete knowledge of the linguistic concepts needed to teach literacy skills effectively, several reports have corroborated the findings with methodical investigations (see special issues on the topic in the *Journal of Learning disabilities*, 2009; *Reading and Writing: An Interdisciplinary Journal*, 2012; and *Annals of Dyslexia*, 2016). Even though most of the studies have demonstrated that, in general, teachers lack the knowledge about the concepts needed to teach literacy skills, there are differences in teachers’ knowledge about different concepts. For instance, generally, teachers perform better on tasks relating to syllables than on phonemes and morphemes (Joshi et al., 2009). We like to highlight some findings from the previous research studies. Unfortunately, these findings are observed in most of the English-speaking countries (Washburn, Binks-Cantrell, Joshi, Martin-Chang, & Arrow, 2016) but also in other alphabetic languages such as Spanish (Soriano-Ferrer, Echegaray-Bengoa, & Joshi, 2016) and more importantly Finnish (Aro & Björn, 2016), as Finnish children perform consistently high in international comparisons. The importance of teacher knowledge in promoting student performance was demonstrated by McCutchen et al. (2002). These authors provided professional development in explicit instruction to teachers during summer before the fall semester began, and then, the treatment group taught explicit instruction while the comparison group had not received professional development. After 12 weeks of such instruction, students who had received explicit instruction from the treatment group performed significantly better than the students in the comparison group. The results from this study reveal the impact of good teaching. Sometimes, in-service teachers overestimate their knowledge about these constructs as demonstrated by Cunningham, Perry, Stanovich, and Stanovich (2004). In this study, in-service teachers who performed moderately better on a survey about language constructs estimated that they knew less about the constructs than those who performed poorly on the survey but overestimated their knowledge about these skills. A study by Binks-Cantrell, Washburn, Joshi, and Hougen (2012), titled “Peter effect” showed that pre-service teachers who were trained by university faculty members who had undergone professional development in explicit instruction performed better on a language construct survey compared to pre-service teachers who were taught by university faculty who had not gone through such professional development and had lacked the knowledge about how to teach literacy instruction explicitly. Thus, the title “Peter Effect” implying one cannot give what one does not have.

This special issue is a further probe in the field of teacher knowledge to examine various aspects such as teachers’ perception and self-efficacy. Wijekumar, Beerwinkle, Graham, and Harris present the results from their randomized controlled studies of fourth and fifth grade teachers and administrators on reading comprehension and writing. Additionally, these authors interviewed 10% of those teachers and examined the curricula. It was found that teachers expressed that they had not received adequate preparation during their pre-service training and further, teachers do not feel empowered to implement evidence-based reading and writing instruction. An important extension of this work relates to the knowledge and support from

school administrators during intervention implementation. McMahan, Oslund, and Odegard examined the association between knowledge about linguistic constructs and the professional development provided during a two-year course related to constructs to 347 in-service teachers. As expected, teachers receiving the professional development performed better on the survey, even though the weak areas were spelling and morphological knowledge. However, surprising facts were that the degree (whether B. A. or M.A.) and the number of years of experience were not related to the performance on the survey; it was only the exposure to instruction that impacted the performance on the survey.

Response to intervention (RtI) is a useful concept to provide early intervention to children with reading difficulties; however, there is no general agreement about RtI and it is not uniformly implemented. Al Otaiba, Rivas, Lan, Allor, Baker, Yovanoff, and Kamata constructed a 52-item survey on the knowledge about RtI and computed exploratory factor analysis which yielded three factors relating to teacher knowledge about: (1) tier 1 implementation, (2) leadership and school systems, and (3) data-based decision-making. After administering it to 139 teachers, it was found that the teachers had better knowledge about tier 1 implementation and leadership and school systems, however performed lower on data-based decision-making which is important to help children in their literacy skills. Weiser, Buss, Gallegos, and Murray addressed the importance of coaching based on evidence-based practices to see the improvement in literacy skills among 452 students in grades K–8 experiencing reading difficulties and involved 44 teachers. The teachers were provided with evidence-based coaching in three formats: on-site, on-demand, or through technology. Even though all three types of coaching improved students' decoding, fluency, comprehension, spelling, and writing skills, technology-based coaching showed greater benefits. Teacher self-efficacy, a belief in one's goals achievement, plays an important role in teacher turnover, and interestingly, teachers have higher self-efficacy before they start teaching but it goes down sharply especially in the first year of teaching, which in turn may result in teacher turnover. Feng, Hodges, Waxman, and Joshi analyzed a large data set from the 2011–2012 Schools and Staffing Survey (SASS) administered to first year teachers which had items relating to teacher self-efficacy, mentorship received, and previous course work, whether about demographics such as rural vs. urban and private vs. public schools. Based on latent class analyses, three distinctive classes of self-efficacy were identified and they were high, moderate, and low. What was interesting to note was that irrespective of teaching assignments, teachers with high self-efficacy had completed reading content courses during their university preparation programs and also had received discipline-specific mentoring during their first year.

Does the knowledge of linguistic constructs translate to applying to classroom situations? This question was answered by Arrow, Braid, and Chapman by observing teachers while teaching in addition to administering survey examining teacher knowledge and practices in New Zealand. It was interesting to note that even teachers who had sufficient knowledge of linguistic constructs resorted to implicit teaching of alphabetic principle and mainly at the word level. English, being an international language, is being taught widely throughout the world. Fuchs, Kahn-Horwitz, and Katzir examined teachers who were teaching English as a foreign language (EFL) in elementary schools in Israel. Based on the survey that incorporated the recommendations of National Reading Panel and the suggestion for EFL instruction, it was found that there was a gap between teachers' practices and the recommended practices for scientifically based literacy instruction. Bae, Yin, and Joshi compared the performance of teachers of EFL in China and Korea and found that both Chinese and Korean teachers lacked knowledge about the linguistic constructs; however, there were differences between the two

groups. Chinese EFL teachers performed better on items relating to morphological awareness while Korean EFL teachers had more positive self-perception on teaching typical readers, fluency, and reading comprehension than Chinese EFL teachers.

We have tried to address different aspects of teacher knowledge including their perception and self-efficacy, technology-based coaching, and Rtl, in both within and outside of the USA. We wish to thank all the contributors for their timely submission and reviewers for their constructive comments which made the papers in this special issue better. We also wish to thank Drs. Becky Chen, Alexandra Gottardo, Tim Odegard, and Ms. Denise Douce for their help in bringing this special issue. Our ultimate hope in producing this special issue is that it will encourage more research on teacher preparation and implementation of evidence-based literacy instruction to help children acquire literacy skills both at home and abroad.

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