



## REL Pacific Ask A REL Response

Literacy  
October 2018

### Question:

**What does the research say are predictors of grade 3 reading proficiency?**

### Response:

Following an established REL Pacific research protocol, we conducted a web-based search for resources related to grade 3 reading proficiency and its predictors. The sources included ERIC and other federally funded databases and organizations, research institutions, and academic research databases (for details, please see the methods section at the end of this memo). Though this review includes research from non-Pacific contexts, we focused our search mainly on studies in the Pacific and other indigenous contexts for greater relevancy to the Pacific region.

References are listed in alphabetical order, not necessarily in order of relevance. Descriptions of the resources are quoted directly from the publication abstracts. We have not evaluated the quality of references and the resources provided in this response. We offer them only for your reference. Also, our search included the most commonly used research resources, but they are not comprehensive and other relevant references and resources may exist.

### Research References

Canto, A. I. & Proctor, B. E. (2013). Beyond ORF: Student-level predictors of reading achievement. *Journal of Research in Education*, 23(2), 17–34.

<https://eric.ed.gov/?id=EJ1098420>

*From the abstract:* “This study explored student-level predictors of reading achievement among third grade regular education students. Predictors included student demographics (sex and socioeconomic status (SES), using free and reduced lunch as proxy for SES), direct observations of reading skills (oral reading fluency (ORF) and word decoding skill (nonsense word fluency/NWF), and academic history (number of prior grade retentions (retentions),

Reading/Language Arts grades (reading grade), and attendance rate. Hierarchical linear regression results indicated that ORF and reading grade were statistically significant predictors of high-stakes reading achievement for this sample (model  $R^2 = 0.631$ ). Results replicated previous findings of the predictive value of ORF, above and beyond economic disadvantage and highlighted the influence of low reading grades as an additional key predictor of poor reading achievement, with effect above and beyond that of ORF alone.”

Decker, S. L., Strait, J. E., Roberts, A. M., & Wright, E. K. (2018). Cognitive mediators of reading comprehension in early development. *Contemporary School Psychology, 22*(3), 249–257. <https://eric.ed.gov/?id=EJ1186886>

*From the abstract:* “Although the empirical relationship between general intelligence and academic achievement is well established, that between specific cognitive abilities and achievement is less so. This study investigated the relationships between specific Cattell-Horn-Carroll (CHC) cognitive abilities and reading comprehension across a large sample of children (N = 835) at different periods of reading development (grades 1–5). Results suggest select cognitive variables predict reading comprehension above and beyond basic reading skills. However, the relative importance of specific cognitive abilities in predicting reading comprehension differs across grade levels. Further analyses using mediation models found specific cognitive abilities mediated the effects of basic reading skills on reading comprehension. Implications for the important and dynamic role of cognitive abilities in predicting reading comprehension across development are discussed.”

Ehrich, J., Wolgemuth, J. R., Helmer, J., Oteng, G., Lea, T., Bertlett, C., Smith, H., & Emmett, S. (2010). Attendance, performance and the acquisition of early literacy skills: A comparison of indigenous and non-indigenous children. *Australian Journal of Learning Difficulties, 15*(2), 131–149. <https://eric.ed.gov/?q=EJ901053>

*From the abstract:* “As part of an evaluation of a web-based early literacy intervention, ABRACADABRA, a small exploratory study was conducted over one term in three primary schools in the Northern Territory. Of particular concern was the relationship between attendance and the acquisition of early literacy skills of Indigenous and non-Indigenous children. Using the GRADE literacy assessment, it was found that students made significant gains in a number of early literacy skills (e.g. phonological awareness skills and vocabulary processing). Classroom attendance was strongly and positively correlated with the acquisition of phonological awareness skills and early literacy skills (e.g. letter recognition, word identification processing). Indigenous children attended class significantly less frequently than non-Indigenous children and performed significantly worse overall, particularly with regard to phonological processing tasks. In light of these findings, it is

suggested irregular attendance contributed to the Indigenous students' lowered literacy acquisition.”

Fletcher, J., Parkhill, F., Fa’afai, A., Taleni, L. T., & O’Regan, B. (2009). Pasifika students: Teachers and parents voice their perceptions of what provides supports and barriers to Pasifika students’ achievement in literacy and learning. *Teaching and Teacher Education: An International Journal of Research Studies*, 25(1), 24–33. <https://eric.ed.gov/?id=EJ822543>

*From the abstract:* “The changing ethnic population of schools in New Zealand challenges our educators to respond proactively in reviewing how students from minority groups develop effective literacy and learning skills. Pasifika students' achievement levels in literacy, particularly reading and writing literacy, has been an area of national focus for the Ministry of Education, teachers, teacher educators and the Pasifika community. For many students from a minority ethnic group, the interpretation of texts from a different culture provides challenges for teachers that require mediation in the construction of meaning. Our previous research accordingly asked Years 5–9 Pasifika students in mainstream schools in the South Island of New Zealand to tell us what they saw as supports and barriers to their literacy learning. The study that is the subject of this present article built on that research by asking the teachers and parents of Pasifika students in a cluster of schools to state what they thought supported or hindered literacy learning for these youngsters. Our particular aim was to enhance identification and understanding of pedagogical practices and family/community factors which influence literacy learning outcomes for Pasifika students during the primary school years. The research found that Pasifika students' literacy learning, and overall learning, was more likely to be enhanced when Pasifika values, language identities and cultural knowledge were made an implicit part of teaching and learning practices.”

*Note: REL Pacific was unable to locate a free link to the full-text version of this resource. Although REL Pacific tries to provide publicly available resources whenever possible, this resource may be of sufficient interest to the reader to warrant finding it through university or public library systems.*

Gove, A., Dombrowski, E., Pressley, J., King, S., & Weatherholt, T. (2018). Persistence and fadeout of preschool participation effects on early reading skills in low- and middle-income countries. *Global Education Review*, 5(2), 85–109. <https://eric.ed.gov/?id=EJ1183916>

*From the abstract:* “The adoption of the Sustainable Development Goals (SDGs) in September 2015 marked a new milestone for early childhood education, care, and development. For the first time in the framework of global goals, preschool education was described as integral to children's school readiness. Yet with few exceptions, much of the research on the impact of preschool has stemmed from high-income countries. Even fewer studies have examined preschool participation and later learning across multiple countries.

This article helps fill this gap by connecting preschool participation to early primary reading outcomes, as measured by the Early Grade Reading Assessment. Drawing on a unique data set using student-level learning assessments from 16 countries, we use preprimary participation to explain primary school reading skills, including letter knowledge and oral reading fluency. We also model the influence of key demographic variables on these outcomes, including home language and classroom language of instruction (LOI). For a subset of six countries with exceptionally rich data, we examine national-level policy and practice to better understand what might explain the persistence or fadeout of the effect of preschool. Policy makers and practitioners alike will find these results useful in making cases for improving preschool experiences for children in low- and middle-income countries in the next decade of SDG-related efforts.”

Hjetland, H. N., Brinchmann, E. I., Scherer, R., & Melby-Lervåg, M. (2017). Preschool predictors of later reading comprehension ability: A systematic review. Oslo, Norway: Campbell Collaboration. <https://eric.ed.gov/?id=ED586235>

*From the abstract:* “Knowledge about preschool predictors of later reading comprehension is valuable for several reasons. On a general level, longitudinal studies can aid in generating understanding and causal hypotheses about language and literacy development, both of which are crucial processes in child development. A better understanding of these developmental processes may guide the establishment of effective instruction and interventions to teach reading comprehension that can later be tested in randomized controlled trials. Knowledge about preschool precursors for reading comprehension skills can also aid in developing tools to identify children at risk of reading difficulties. The primary objective for this systematic review is to summarize the available research on the correlation between reading-related preschool predictors and later reading comprehension skills. The following research questions guided this study: (1) To what extent do phonological awareness, rapid naming, and letter knowledge correlate with later decoding and reading comprehension skills; (2) To what extent do linguistic comprehension skills in preschool correlate with later reading comprehension skills; (3) To what extent do domain-general skills in preschool correlate with later reading comprehension skills, and do these skills uniquely contribute to reading comprehension skills beyond decoding and linguistic comprehension; (4) To what extent do preschool predictors of reading comprehension correlate with later reading comprehension skills after concurrent decoding ability has been considered; and (5) To what extent do other possible influential moderator variables (e.g., age, test types, SES, language, country) explain any observed differences between the studies included? A comprehensive search strategy in collaboration with a search information retrieval specialist at the university library was developed based on seven different databases. Findings show that the foundation for reading comprehension is established in the preschool years through the development of language comprehension and code-related skills. Code-

related skills and decoding are most important for reading comprehension in beginning readers, but linguistic comprehension gradually takes over as children become older. Taken together, these results suggest a need for a broad focus on language in preschool-age children.”

Lee-Hammon, L. & McConney, A. (2017). The impact of village-based kindergarten on early literacy, numeracy, and school attendance in Solomon Islands. *European Early Childhood Education Research Journal*, 25(4), 541–560. <https://eric.ed.gov/?id=EJ1146544>

*From the abstract:* “This research, a collaboration of an international aid organisation, an institute of higher education, and an external evaluation consultant, assesses the early literacy, numeracy, and school attendance outcomes resulting from an early childhood development programme undertaken in several villages in the province of Makira, Solomon Islands. The programme was designed to enable kindergarten provision, including teacher education and development, as an early childhood development strategy. This research focused on assessing programme impact in terms of early literacy, numeracy, and school attendance for children who had participated in kindergarten in Makira Province, compared against a matched group of children in another province of Solomon Islands who did not experience the early childhood programme. The findings of the study indicate both a statistically and educationally significant impact of village-based kindergarten on children's literacy and numeracy as well as their school attendance. These findings are discussed in the context of the international literature examining early childhood education in developing countries.”

McClelland, M., M., Acock, A. C., Morrison, F. J. (2006). The impact of kindergarten learning-related skills on academic trajectories at the end of elementary school. *Early Childhood Research Quarterly*, 21(4), 471–490. <https://eric.ed.gov/?id=EJ747499>

*From the abstract:* “Recent research indicates that children's learning-related skills (including self-regulation and social competence) contribute to early school success. The present study investigated the relation of kindergarten learning-related skills to reading and math trajectories in 538 children between kindergarten and sixth grade, and examined how children with poor learning-related skills fared throughout elementary school on reading and math. Latent growth curves indicated that learning-related skills had a unique effect on children's reading and math scores between kindergarten and sixth grade and predicted growth in reading and math between kindergarten and second grade. In addition, children with poor learning-related skills performed lower than their higher-rated peers on measures of reading and mathematics between kindergarten and sixth grade, with the gap widening between kindergarten and second grade. Between third and sixth grade, this gap persisted but did not widen. Discussion focuses on the importance of early learning-related skills as a component in children's

academic trajectories throughout elementary school and the need for early intervention focusing on children's self-regulation and social competence.”

Morgan, P. L., Farkas, G., Tufis, P. A., & Sperling, R. A. (2008). Are reading and behavior problems risks factors for each other? *Journal of Learning Disabilities, 41*(5), 417–436. <https://eric.ed.gov/?id=EJ806367>

*From the abstract:* “Two questions were investigated. First, are children with reading problems in first grade more likely to experience behavior problems in third grade? Second, are children with behavior problems in first grade more likely to experience reading problems in third grade? The authors explored both questions by using multilevel logistic regression modeling to analyze data from the ‘Early Childhood Longitudinal Study-Kindergarten Class’ (ECLS-K). After statistically controlling for a wide range of potential confounds, they found that children with reading problems in first grade were significantly more likely to display poor task engagement, poor self-control, externalizing behavior problems, and internalizing behavior problems in third grade. They also found that children displaying poor task engagement in first grade were more likely to experience reading problems in third grade. Collectively, these findings suggest that the most effective types of interventions are likely to be those that target problems with reading and task-focused behaviors simultaneously.”

Mulligan, G.M., McCarroll, J.C., Flanagan, K.D., & Potter, D. (2018). *Findings from the fourth-grade round of the Early Childhood Longitudinal Study, kindergarten class of 2010–11 (ECLS-K:2011) (NCES 2018-094)*. U.S. Department of Education, Washington, DC: National Center for Education Statistics. <https://eric.ed.gov/?id=ED581674>

*From the abstract:* “This report is intended to provide a snapshot of the children in the ECLS-K:2011 cohort who were in kindergarten for the first time in the 2010–11 school year and in fourth grade 4 years later during the spring of 2015. About 88 percent of children enrolled in kindergarten in 2010–11 were in kindergarten for the first time that school year and were in fourth grade in the spring of 2015. The remaining 12 percent includes children who were repeating kindergarten in 2010–11 or who were not in fourth grade in the spring of 2015, including children who had been retained or advanced resulting in enrollment in a grade other than fourth, or who were in an ungraded classroom or setting in the spring of 2015. Information is presented on selected child and family characteristics, such as poverty status, parental education, family type, and primary home language (table 1), obtained when the children were in kindergarten. Information is also provided on the children's knowledge and skills in reading (table 2), math (table 3), and science (table 4) in the spring of fourth grade, both overall and by the selected kindergarten-year child and family characteristics.”

Park, H. (2008). Home literacy environments and children's reading performance: A comparative study of 25 countries. *Educational Research and Evaluation*, 14(6), 489–505. <https://www.tandfonline.com/doi/abs/10.1080/13803610802576734>

*From the abstract:* “Using data for 4th graders in primary schools from the Progress in International Reading Literacy Study (PIRLS), I compare across 25 countries the ways in which home literacy environments influence children's reading performance. Examined are three indicators: early home literacy activities, parental attitudes toward reading, and number of books at home. The Ordinary Least Squares (OLS) regression analyses show that the 3 measures of home literacy environments positively affect children's reading performance in almost all countries, while the strength of the effects varies substantially across countries. The extent to which the effect of parental education on children's reading is mediated by home literacy environment is only modest except for a few countries. Finally, multilevel models show that the effects of early home literacy activities and parental reading attitudes vary across countries according to their levels of economic development, while the effect of number of books shows the U-shaped relationship with the economic level.”

Singh, M. (2013). A longitudinal study of a state-wide reading assessment: The importance of early achievement and socio-demographic factors. *Educational Research and Evaluation*, 19(1), 4–18. <https://www.tandfonline.com/doi/abs/10.1080/13803611.2012.737572>

*From the abstract:* “Eliminating inequity in public education is a central goal of the No Child left Behind (NCLB) act. Controlling for 3rd-grade performance, the impact of English language learner (ELL) status, socioeconomic status (SES), and special education (SPED) status on a cohort's reading performance was investigated from elementary to high school through a multilevel framework. Results in Hawaii show that the negative impact of low SES and SPED status persists up to high school, while the disadvantage of ELL status is restricted within the elementary grades. Moreover, individual characteristics, not school characteristics, have a dominant impact on future reading performance. Among individual characteristics, early performance is a crucial factor for future academic achievement. The findings show that educational policies that use incentives and sanctions such as NCLB to close achievement gaps may not be successful.”

### **Additional Organizations to Consult**

Global Reading Network – <https://www.globalreadingnetwork.net/>

*From the website:* “The Global Reading Network brings together donors, practitioners, government officials, national and international civil society organizations, and other stakeholders committed to improving reading outcomes for primary grade children around

the world. With support from the United States Agency for International Development (USAID) and other key donor and development partners, the Network collects, develops, and disseminates evidence-based practices to increase the impact, scale, and sustainability of primary grade reading programs.”

## **Methods**

### **Keywords and Search Strings**

The following keywords and search strings were used to search the reference databases and other sources:

- “reading” and “Pacific students” and “grade 3”
- “grade 3” and “reading achievement” and “predictive variables”
- “demographics” and “foreign countries” and “reading achievement” and “early childhood”
- “predictor” and “reading achievement” and “Preschool children” and “elementary students”
- “predictor” and “reading achievement” and “elementary students”
- “literacy practice” and “primary school” and “pacific islands”
- “literacy” and “primary school” and “pacific islands”
- “reading” and “pacific islands”
- “reading skills” and “primary school” and “indigenous students”
- “student-level predictors” and “reading achievement”

### **Searched Databases and Resources**

- ERIC, EBSCO databases, Google Scholar

### **Reference Search and Selection Criteria**

REL Pacific searched ERIC and other academic journal databases for studies that were published in English-language peer-reviewed research journals within the last 20 years. REL Pacific prioritized documents that are accessible online, although not all sources may be publicly available. We also prioritized references that provide practical information based on peer-reviewed research for the teachers and leaders who requested this Ask A RE; as always, REL Pacific first considers studies conducted in the Pacific region or similar contexts, but also included research with generalizable findings.<sup>1</sup> Methodological priorities and considerations were given to randomized control trials where possible, followed by meta-analyses, literature reviews, and quasi-experiments. REL Pacific also prioritized studies with target populations greater than 30 and were longitudinal in nature. Peer reviewed research was preferred, but an exception was made to include Hjetland et al. (2017) due to its relevance to the question. Resources included in this document—including URLs, descriptions, and content—were last accessed in October 2018.

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<sup>1</sup> This memorandum is one in a series of quick-turnaround responses to specific questions posed by educational stakeholders in the Pacific Region (American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Guam, Hawai'i, the Republic of the Marshall Islands, and the Republic of Palau), which is served by the Regional Educational Laboratory (REL Pacific) at McREL International. This memorandum was prepared by REL Pacific under a contract with the U.S. Department of Education's Institute of Education Sciences (IES), Contract ED-IES-17-C-0010, administered by McREL International. Its content does not necessarily reflect the views or policies of IES or the U.S. Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.