

Critical Review:
What is the evidence that professional development improves students' literacy outcomes?

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This critical review examines the evidence regarding educators' professional development and its effect on students' literacy outcomes. Study designs include randomized clinical trials, nonrandomized clinical trials, a cross-over study design and a single group design. Overall, the evidence gathered from this review provides suggestive evidence of a positive effect of educators' PD on students' literacy outcomes. Recommendations for future research and clinical practice are provided.

Introduction

Professional development (PD) in education refers to activities that increase educational professionals' knowledge of academic subjects (U.S. Department of Education, 2005). One challenge is to provide high quality PD that has a lasting impact on classroom instruction as well as student's achievement. Issues like, workload, time, and high variability in funding, can impact the implementation of PD for educational professionals. In Canada, it has been calculated that at least half a billion dollars are spent on professional development for educators each year (Campbell et al., 2017).

As well, professional development has been defined as "high quality, sustained, intensive, and classroom-focused in order to have a positive and lasting impact on classroom instruction and the teacher's performance in the classroom" (NCLB, 2002, p. 243). As such, a particular target for criticism is PD that consists of only single-day workshops. However, there is no consistent infrastructure for PD. Quality PD differs with respect to the inclusion of outside experts, ongoing delivery, follow-up support, activities in context, content, and duration (Yoon et al., 2007).

Research has shown connections between student achievement and teacher preparation and skills (Ferguson, 1991). Specifically, studies have demonstrated that teachers' expertise accounted for 43% of the difference in students' reading achievement across grades 1 through 11 (Ferguson, 1991). Speech-language pathologists often have the opportunity to provide professional development for teachers. Therefore, it is important for speech-language pathologists to examine the impact of delivering intensive professional development.

Objectives

The primary objective of this paper is to critically evaluate existing literature regarding the possibility of a link between educators' professional development and students' literacy outcomes.

Methods

Search Strategy

Computerized databases including PsycInfo, Scopus, and PubMed were searched using the following terms: (professional development) AND (elementary school) AND (teacher) AND (literacy). The search limited to peer-reviewed articles written in English between 2008 and 2018.

Selection Criteria

Selected studies for inclusion in this review were required to measure or describe literacy outcomes in school-age children (Grades K – 8) who had PD as intervention. The PD procedures had to be described in detail (e.g. content, duration, context, etc.).

Data Collection

Results of the literature search yielded seven articles that met the selection criteria. Two of the studies were randomized clinical trials. Three of the studies were nonrandomized clinical trials. One study was a crossover study design. The last study employed a single group design.

Results

Babinski et al., (2018) completed a randomized clinical trial to examine a professional development program for 45 teachers with the aim of increasing the language and literacy skills of young Latino English learners (n=105 from 12 elementary schools). The PD program included a five-day summer

institute of 35 hours of sessions, four follow-up application modules (1.5 hours each), in-school instructional coaching every six weeks and weekly collaboration meetings with teachers. The PD focused on key conceptual literacy domains: phonemic awareness, phonics, fluency, vocabulary, and text comprehension, with a greater emphasis on vocabulary and comprehension. Outcomes measures completed pre and post intervention included student academic achievement measured using a standard educational assessment tool, as well as teacher observations using both a standardized tool and one created for the study. Reliability measures were not reported, however acceptable training fidelity was.

Appropriate statistical analyses revealed significant gains on one of seven subtests (story recall) for the students in classrooms whose teachers had compared to had not received the PD. Exploratory post hoc analyses suggested that students with lower English proficiency benefited more. Teacher observations revealed that the overall quality of the classroom environment was the same in both groups. However, teachers' use of specific instructional strategies for English language learners were higher in the PD group.

This study provides suggestive evidence that teacher participation in the professional development program positively impacted students' story retelling but not other areas of language and literacy. Related outcomes provided suggestive evidence of strategy adoption by teachers who received the intervention.

Carlisle and Berebitsky (2010) completed a nonrandomized clinical trial comparing a model of PD that did or did not include a literacy coach by examining teacher's attitudes toward professional development, their instruction, and student's literacy outcomes with 43 teachers and 981 students in 53 different classrooms. The content of the PD focused on phonics, phonemic awareness, and differentiated instruction. Teachers in the PD-coach group were recruited in schools that were granted funding for states to improve early reading in high poverty schools, however baseline equivalence for teaching experience was reported. Teachers in both groups attended 9 seminars in 1 school year (3 hrs each). The schools in the PD-coach model employed a literacy coach who worked one-on-one with teachers, modeling methods of instruction, and explained teaching methods. Outcome measures included student's decoding abilities measured at three different time periods using a standard educational assessment tool. Teacher's attitudes and their instructional practices were measured using a self-

administered questionnaire and an observational instrument developed for the study. Acceptable reliability and training fidelity were reported for these measures.

Appropriate statistical analyses revealed that students in PD-coach classrooms that were considered at risk in the fall were significantly more likely to move to lower risk categories by the spring than peers in PD-no coach classrooms. As well, students in PD-coach classrooms read just over 9 more nonsense words than peers in the PD-no coach classroom. Surveys revealed that there were no significant differences between the PD-coach teachers and PD-no coach teachers regarding their attitudes toward PD, support from principal for instructional change, and the climate of the school. Observations revealed that teachers' receiving coaching spent more time implementing small group instruction.

This study provides suggestive evidence that the inclusion of a literacy coach into a professional development program resulted in improved outcomes for at-risk students, and improvement in decoding of nonsense words. Related outcomes provided suggestive evidence of strategy adoption by teachers in the PD-coach group.

Makumbila and Rowland (2016) completed a single group pre-post-test study to examine a professional development project for improving the reading abilities of 152 students learning English as a second language with 4 grade 3 teachers. The project included an all-day professional development workshop with a focus on reading comprehension and vocabulary, classroom observation once a month, and teacher conferences after each observation. Outcome measures included students reading comprehension, word recognition, fluency and reading habits (e.g. reads independently) using a nonstandardized assessment checklist as well as teacher reports. Reliability for these measures were not reported.

Generally, the article was not written in a traditional format, which made it difficult to critique. No statistical analysis was provided. Based on the completed checklist, the number of students in the developing category decreased somewhat.

This study provides equivocal evidence that the professional development project improved student's reading level.

McIntyre, Chen, Munoz, and Beldon (2010) Completed a nonrandomized clinical trial to examine

reading achievement growth of English language learners in the classrooms of 23 teachers that received training compared to students of teachers who did not have the training. The PD consisted of eight 3-hour after school sessions across 18 months, which included hands-on activities, visual aids, graphic organizers, group work, etc. Each teacher received one coaching visit. The PD focused on reading comprehension, student strategies (e.g. summarizing, self-monitoring, predicting, etc.), assessment, and lesson planning. Seven teachers were judged to have adhered fully to the professional development model; therefore, the 50 children in their classrooms were chosen for reading achievement analyses. Outcome measures included students' reading achievement measured using scales associated with a state standard test; details about the test were not provided. Teacher's instructional outcomes were measured using an observational instrument developed by the creators of the professional development model.

Statistical analysis included multiple tests rather than a single omnibus test. Results revealed no significant differences in reading achievement scores for the students in classrooms whose teachers had compared to those who had not completed the PD. All teacher participants in the PD scored their ability to implement the PD model higher, although no statistical analysis was completed.

This study provides equivocal evidence that this PD model did not improve reading achievement for English language learners compared to students not served by the PD model at all.

Porche, Pallante, and Snow (2013) completed a non-randomized clinical trial aimed at testing the literacy outcomes for kindergarteners (n=122) and fourth graders (n=138) in the classrooms of 27 teachers who received training in small groups and with on-site coaching focused on preventing reading difficulties against a comparison group that received no PD. The PD curriculum included six different modules focusing on strategic assessment, targeted instruction for small-groups, word reading, fluency, vocabulary, writing, and comprehension. The PD also included 8-10 regularly scheduled on-site coaching lasting approximately 30 minutes and weekly team meetings. Students literacy outcomes were measured using two standardized assessments. Evidence for reliability of these measures was cited. Teachers administered the assessments on their own students under the monitoring of the PD staff in the treatment condition.

Appropriate statistical analyses revealed no effect of the PD for kindergarten students. Additionally, grade four students whose teachers participated in PD showed significant gains in one out of the four assessments (word recognition). At risk grade four PD students made significant gains in vocabulary measures compared to at-risk control peers.

This study provides suggestive evidence that the teachers participation in the PD program positively impacted word recognition for grade 4 students, as well as vocabulary for at-risk grade 4 students, but not other areas of language and literacy.

Vernon-Feagans, Kainz, Ginsberg, Hedrick, and Amendum (2013) completed a randomized clinical trial to examine whether a classroom teacher professional development program, delivered through webcam technology literacy coaching, could enhance 75 rural classroom teachers' (K-Grade 1) instructional skills to help struggling readers (n=631) progress rapidly in early reading. The PD included a 3-day summer workshop led by trained reading coaches, meetings via webcam with the teacher for approximately 20 minutes every 2 weeks to discuss intervention of an individual struggling reader, and 30 min bi-weekly school team meetings via webcam with a focus on fluency, phonemic awareness, and guided oral reading. Outcome measures included literacy achievement measured using four subtests from a standardized assessment and a standardized assessment tool for vocabulary knowledge. Acceptable reliability for this measure was reported.

Appropriate statistical analyses revealed that significantly higher scores for the struggling readers in the intervention compared to control schools. Additional results revealed that these struggling readers were gaining at the same rate as the non-struggling readers, but not catching up with their peers in intervention schools.

This study provides compelling evidence that the professional development program helped struggling readers progress across basic word reading, spelling, and passage comprehension over 1 year.

Al Otaiba et al. (2016) completed a quasi-experimental repeated measures study to examine changes from baseline through 2 years of PD in 10 kindergarten teachers' differentiation of Tier 1 literacy instruction and changes in reading and vocabulary of the teachers' students (n=416) in 4 schools. Teachers received a one-day long workshop, with a focus on evidence-based, tier one instruction and differentiated instruction, monthly in-service

training and biweekly classroom-based coaching. Outcome measures included teachers' literacy observations using an observational instrument adapted for this study. Student word reading skills and vocabulary growth was assessed using a standardized assessment tool. Acceptable reliability for these measures was reported. Student assessors were not blind to condition, but acceptable training fidelity was reported.

Appropriate statistical analyses revealed significantly greater letter-word identification in the first and second year of treatment relative to baseline. No change was observed for vocabulary. The growth in first and second year was not significantly different from each other. Observations revealed that teachers learned to provide more small-group and differentiated instruction.

This study provides suggestive evidence that the word level reading of students whose teachers participated in the PD improved in the second year of treatment, with no accumulation of growth in the third year. Related outcomes provide suggestive evidence for strategy adaption of teachers.

Discussion

Overall, the findings indicate consistently suggestive evidence of a positive effect of educators' PD on students' literacy outcomes. One variable that was consistent in the studies of PD effectiveness was the element of coaching. Interestingly, Vernon-Feagans and colleagues (2013) found that a PD program with literacy coaching delivered via webcam improved the outcomes of struggling readers. Furthermore, Carlisle and Berebitsky (2011) found that inclusion of a literacy coach lead to greater literacy outcomes, especially for at-risk students. The educators in this PD-coach group had access to the coach on a daily basis for one year. Contrastingly, McIntyre et al. (2010) found no effect of PD in their study. This PD included a literacy coach; however, the coach only visited each educator once.

Additionally, Porche, Pallante, and Snow's (2012) study found no effect of PD for kindergarten students. It was unclear whether teachers were delineated by grade level during the PD modules for phonological awareness, fluency, vocabulary and writing. Therefore, it is possible that kindergarten teachers were participating in modules that targeted literacy skills that were beyond the early years.

Additionally, results from the critical review suggest that these models of PD benefited at-risk students.

This is evidenced by Carlisle and Berebitsky (2011) who found that at-risk students receiving the treatment were more likely to move to lower risk categories by the end of the PD. Additionally, Porche and colleagues (2012) found that at-risk students in grade four, whose teachers participated in PD, ended the year with scores similar to non-risk students. Consistent across these models of PD was the emphasis on enhancing differentiated instruction and small-group learning. Differentiated instruction allows teachers to adapt instruction to suit differing learning styles and strengths. Lastly, Vernon-Feagans (2013) and colleagues targeted their PD to struggling readers and found that these students were gaining at the same rate as non-risk peers, but not catching up.

In order to improve the level of evidence provided by the existed literature, it is recommended that future research include follow-up measurements to determine if improvements in students' literacy achievements are maintained long-term. Additionally, many of the studies examined comparisons of PD with a control group that received no PD at all. Future research should compare the effectiveness of intensive PDs with models that require fewer resources to implement.

Clinical Implications

Speech-language pathologists should consider the inclusion of ongoing coaching to models of PD to support educators' learning and strategy implementation.

References

- Al Otaiba, S., Folsom, J. S., Wanzek, J., Greulich, L., Waesche, J., Schatschneider, C., & Connor, C. M. (2016). Professional development to differentiate kindergarten tier 1 instruction: Can already effective teachers improve student outcomes by differentiating tier 1 instruction? *Reading & Writing Quarterly, 32*(5), 454-476. doi:10.1080/10573569.2015.1021060
- Babinski, L. M., Amendum, S. J., Knotek, S. E., Sánchez, M., & Malone, P. (2018). Improving young english learners' language and literacy skills through teacher professional development: A randomized controlled trial. *American Educational Research Journal, 55*(1), 117-143. doi:10.3102/0002831217732335
- Carlisle, J. F., & Berebitsky, D. (2011). Literacy coaching as a component of professional

- development. *Reading and Writing: An Interdisciplinary Journal*, 24(7), 773-800. doi:10.1007/s11145-009-9224-4
- Campbell, C., Osmond-Johnson, P., Faubert, B., Zeichner, K., & Hobbs-Johnson, A. (with Brown, S., DaCosta, P., Hales, A., Kuehn, L., Sohn, J., & Steffensen, K.). (2017). The state of educators' professional learning in Canada: Final research report. Oxford, OH: Learning Forward.
- Ferguson, R. F. (1991). Paying for public education: New evidence on how and why money matters. *Harvard Journal on Legislation*, 28(2), 465.
- Makumbila, M. P., & Rowland, C. B. (2016). Improving south african third graders' reading skills: Lessons learnt from the use of guided reading approach. *South African Journal of Childhood Education*, 6(1), 1-8. Retrieved from <https://www-lib-uwo-ca.proxy1.lib.uwo.ca/cgi-bin/ezpauthn.cgi?url=http://search.proquest.com.proxy1.lib.uwo.ca/docview/2101885584?accountid=15115>
- McIntyre, E., Kyle, D., Chen, C., Muñoz, M., & Beldon, S. (2010). Teacher learning and ELL reading achievement in sheltered instruction classrooms: Linking professional development to student development. *Literacy Research and Instruction*, 49(4), 334-351. doi:10.1080/19388070903229412
- No Child Left Behind Act of 2001, P.L. 107-110, 20 U.S.C. § 6319 (2002).
- Porche, M. V., Pallante, D. H., & Snow, C. E. (2012). Professional development for reading achievement. *Elementary School Journal*, 112(4), 649-671. doi:10.1086/665008
- Vernon-Feagans, L., Kainz, K., Hedrick, A., Ginsberg, M., & Amendum, S. (2013). Live webcam coaching to help early elementary classroom teachers provide effective literacy instruction for struggling readers: The targeted reading intervention. *Journal of Educational Psychology*, 105(4), 1175-1187. doi:10.1037/a0032143
- Yoon, Kwang Suk & Duncan, Teresa & Lee, Silvia Wen-Yu & Scarloss, Beth & Shapley, Kathy. (2007). Reviewing the Evidence on How Teacher Professional Development Affects Student Achievement. Issues & Answers. REL 2007-No. 033. Regional Educational Laboratory Southwest.