

Improving reading instruction: Advantages of providing tiered, year-long implementation support

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Purpose

Millions of students have technology tools integrated into their classrooms. In 2013, the Software & Information Industry Association (SIIA) projected PreK–12 market for educational software reached a high of \$7.97 billion (Richards & Struminger, 2013). In addition, the number of K-12 classrooms adapting blended learning models, which leverage technology to give students control over time, place, path, and/or pace of their own learning, is rapidly increasing (Horn & Staker, 2011; Schwirezke, Vashaw, & Watson, 2018). Yet, we know little about the impact of teachers' "buy-in," engagement, and implementation efforts on the outcomes of their students. One survey reported only 8% of K-8 teachers received pre-service training on digital game integration in their classrooms (Takeuchi & Vaala, 2014).

The aim of this study was to evaluate a coaching-based implementation support model (i.e., professional development) as it applied in the context of a blended learning program for reading development in elementary schools. The model was developed by Lexia Learning and included an implementation service package (ISP) to support building leaders and training educators on the best practices of the blended learning program's core components. One of the theorized keys to success for this model is the coaching relationship built between the Implementation Manager and each individual school, which allows the support delivered to be customized. The practices the Implementation Manager coached on include modeling methods of using data to inform instruction, problem solving barriers to student usage and progress, and developing systems for year-long sustainability.

The overall goal of improving fidelity of use and student progress is met through the Implementation Manager directing coaching services towards multiple audiences within the schools. Leadership support helps the school leadership (e.g., principal, curriculum coordinator, etc.) set and monitor literacy and usage goals for educators (and their classes). Educator support comes in the form of training, professional learning, and coaching events to teach educators how to set and monitor goals for their students. The Implementation Manager works with the school to identify literacy leaders to act as a bridge between classroom teachers and district/school administrators, supporting instruction across classrooms and grades, while building school-wide capacity for meeting long-term goals. The ISP model was evaluated in terms of its impact on student engagement and learning outcomes.

Theoretical Framework

Blended learning programs are designed to combine the use of technology with teacher-led instruction. In general, it is difficult for schools to use blended learning programs with fidelity due to a variety of barriers at the district, school, classroom and student levels (Horn, Gu, & Evans, 2014). The involvement of administrators at school and district levels as part of professional development seems essential in order to strengthen the implementations of programs and initiatives (Franey, 2015). Training approaches that are limited to teachers and other classroom staff are unlikely to be successful on their own.

Effective professional development can provide educators with the knowledge, tools, and confidence to cultivate a positive learning environment and impact student outcomes (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007; Darling-Hammond, 2000; Villegas-Reimers, 2003). Recent work has suggested that a coaching model approach to professional development may be particularly effective where educational technology is concerned (Beglau et al., 2011; Ehsanipour & Zaccarelli, 2017). This kind of instructional coaching explicitly incorporates the active use of technology throughout practice (Beglau et al., 2011). Schools and educators focus on what teaching practices and needs they have as educators and adopt a partnership model between the coach and the educators (Beglau et al., 2011). Along these lines, Lexia Learning developed an approach to implementation services that explicitly positions Implementation Managers and educators as partners, helping educators to identify their own strengths, and needs in their schools and with their students.

In addition to a coaching model approach, Lexia's ISP model borrows heavily from continuous improvement models focused on improving instruction as well as the way the system itself functions (Park, Hironaka, Carver, & Nordstrum, 2013). Continuous improvement efforts involve incorporating iterative feedback on a daily basis (Park et al., 2013). The implementation services model examined here explicitly focuses on educator and school leader daily, weekly, and monthly practices to improve student outcomes. Specifically, there is a "plan-act-assess" iterative model emphasized, where educators and leaders are encouraged to plan their course of action, act, and then assess results. From there, the cycle begins again with the act of planning.

Many educational technology companies often offer implementation services based on a variety of professional development theories, but there is little published evidence on whether these services lead to higher fidelity implementations and thus improved student outcomes. However, previous work has shown that single-time professional development with little focus on the needs of the individual school and educators may not help impact student-level outcomes (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009; Knight, 2009). This study describes and evaluates Lexia Learning's approach to implementation support, designed to help overcome common barriers to using a blended learning approach and aid multiple levels of district or school staff in their efforts to use blended learning to teach reading skills in elementary schools.

Research Methods

Sample

This study examines the impact of Lexia Learning’s ISP on program usage and student outcomes. The sample consisted of 2,604 schools with Lexia Reading Core5 site licenses (unlimited student licenses for a single school) during the 2016–2017 school year. Schools with site licenses only were selected because that purchasing decision in part reflects the intention of the school to use the blended learning program broadly. Of these schools, 810 purchased an ISP between January 2016 and March 2017. There were 361,930 students in these ISP schools. The benefits of utilizing an ISP were examined by comparing the ISP schools with the remaining 1,794 schools (774,194 students) that purchased site licenses but did not to purchase an ISP. These schools were chosen as the sample so that schools both with and without an ISP had indicated through purchasing decisions that they intended to implement the program in the school widely.

All schools with and without a paid ISP had access to free online training guides, reference manuals, a video library, and customer support services (via phone or email). All schools also had the option to purchase any combination of a la carte in-person training events or online webinars.

Implementation Services Packages

Sites that purchased an ISP were assigned an individual Implementation Manager, hired to guide relationships with individual schools and/or districts, and facilitate support services individualized/personalized to the needs of each site. These support services are targeted at two particular audiences: School Leadership and Educators.

Leadership Support services set up school-wide milestones and train administrators how to monitor metrics towards meeting short-term goals. These training points occur throughout the school year, beginning with Implementation planning and account setup. The leadership training continues with multiple success metrics reviews, concluding with an end of year review (see Figure 1).

Educator Support services also utilize elements from continuous improvement models in education (Park et al., 2013), and events are timed to occur between the leadership milestones. Educators are taught how to monitor student usage and progress and provide offline instructional/practice support to accelerate student gains. These trainings are focused on launching the program at the beginning of the school year, data-coaching, and training on instructional materials (see Figure 1). These activities are designed to increase educator engagement and improve student outcomes through a “plan-act-assess” cycle.

Figure 1. Implementation support package schedule



While each ISP contains similar milestones, the focus of these implementations is tailored through the Implementation Manager to be specific for the needs of the school. For example, if a school has particular concerns about how particular sub-populations (e.g., EL) are doing on their reading scores, the Implementation Manager can and will set up milestones to include addressing the particular concerns. In the initial conversation, the Implementation Manager strives to meet the school where they are - What are the realistic blocks of time where a school can implement that program? What teachers will use it? Are there any blockers that the school leaders and educators can envision? The touchpoints focus on making sure schools are meeting those guidelines and helping school leaders adjust in real-time if the school is not using Core5 in the way they had originally envisioned.

Blended Learning Program

The metrics in the blended learning program that evaluate program fidelity and gains are available for all school staff in the online reporting system. District and school leaders can examine student online usage and progress by school, grade, and class. Teachers can quickly assess which students need more time in the program, who should be prioritized for targeted, teacher-led instruction, and what offline materials need to be printed for practice or celebration. Through this portal, educators can access formative and summative assessment information, provide timely feedback, inform instruction, and use assessment data to build student self-direction. Students in this study are able to manage their own learning and monitor their progress through a student dashboard, while the program customizes and personalizes each student's learning experience through an adaptive algorithm.

In the blended learning program, students are assigned a weekly software usage recommendation based on their "risk level", which is defined as their likelihood of completing all of the program levels for their grade by the end of the school year. Struggling students are prescribed more

minutes in the online program to help them reach their in-program benchmark by the end of the year. Previous work has found that students who meet their usage targets are more likely to meet their end-of-year, grade-level benchmark (Schechter, Meyer, & Prescott, 2017). When teachers do not differentiate online usage time, struggling students are more likely to miss their weekly prescribed minutes, and schools with large numbers of these students often face difficulties trying to implement with fidelity. These metrics are available to all schools that purchased site licenses for the blended learning program. However, schools that purchased an ISP are given explicit professional development to directly support the effective use of these metrics.

Variables

All variables examined in the analyses were collected through student use of the online portion of the blended learning product. Variables were aggregated and examined at the school level as that is the level where the bulk of the Implementation Support is directed. Four different time points were examined: September (Time 1), November (Time 2), January (Time 3), and May (Time 4).

Independent variables

Implementation Service Package

Schools were coded with a dummy value of one if they had purchased an ISP and zero if they had not.

Student Risk Category

Students can be working above, in, or below their grade level in the online portion of the program. *High Risk* students are defined as those who are working two or more grades below grade level (e.g., a 2nd grader working on Kindergarten material or below). *Some Risk* students are defined as those who are working one grade below grade level (e.g., a 2nd grader working on 1st grade material).

Dependent variables

Program Fidelity

Program fidelity was examined through looking at the proportion of students meeting their grade-level, end-of-year benchmark or meeting their weekly usage target for at least half of the weeks the student used the program. Students were categorized as meeting or not meeting usage based on those requirements, and the proportion of students meeting the requirements for fidelity was examined at the school level.

Student Progress

Student progress was measured through the average number of units in the blended learning software that students completed per week.

Description of Analyses

Repeated measures ANOVAs were used to answer two research questions:

- **Research Question 1:** Does an ISP increase *program fidelity* (i.e., students more consistently meeting weekly blended learning software usage recommendations)?
 - Follow up question: As is described in the blended learning program section above, students who are struggling to reach their grade-level, end-of-year benchmark will be prescribed more minutes in the program. Because of the

difficulty of getting higher risk students to meet their higher usage targets, we tested whether High Risk students in schools with an ISP used the program with greater fidelity than High Risk students in schools without an ISP.

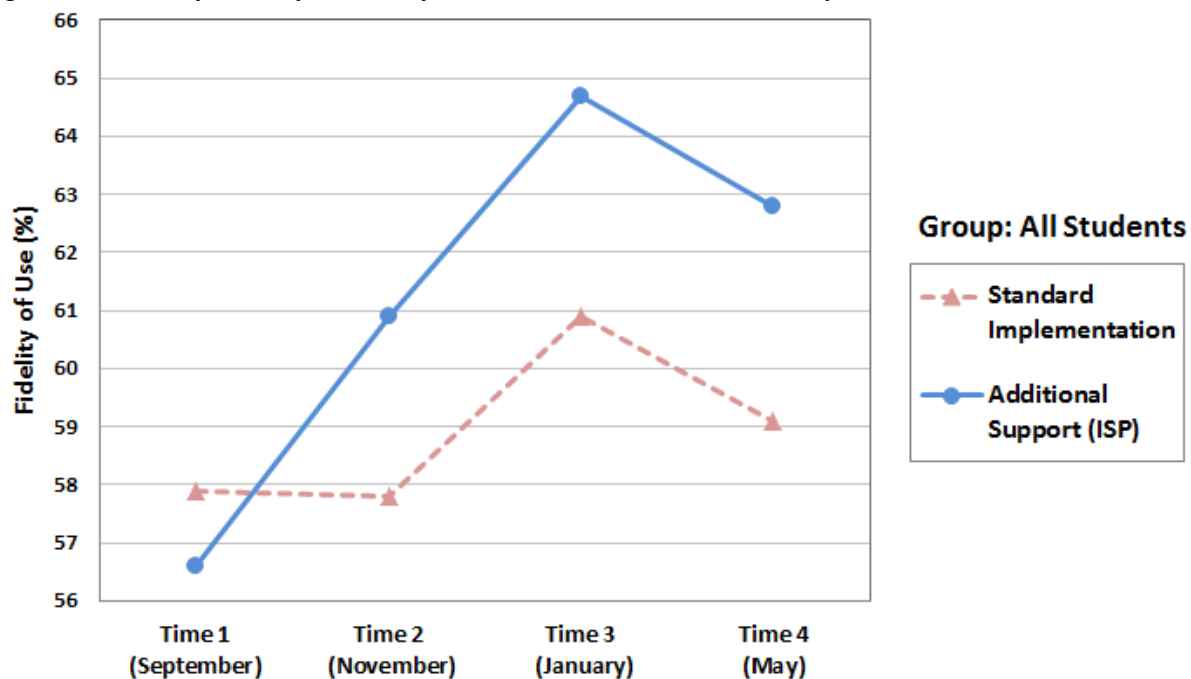
- **Research Question 2:** Does an ISP increase *student progress* (i.e., students complete more units in the blended learning program per week)?
 - Follow up question: The students who fall in the Some Risk category are frequently left behind by school programming (e.g., Vaughn et al., 2010). Sometimes referred to as “bubble students,” they may not qualify for extra services, but are still not meeting their grade-level, end-of-year benchmarks (e.g., Vaughn et al., 2010). As a result, we examined whether Some Risk students in schools with ISPs made more gains than Some Risk students in schools without ISPs.

Results

Program Fidelity

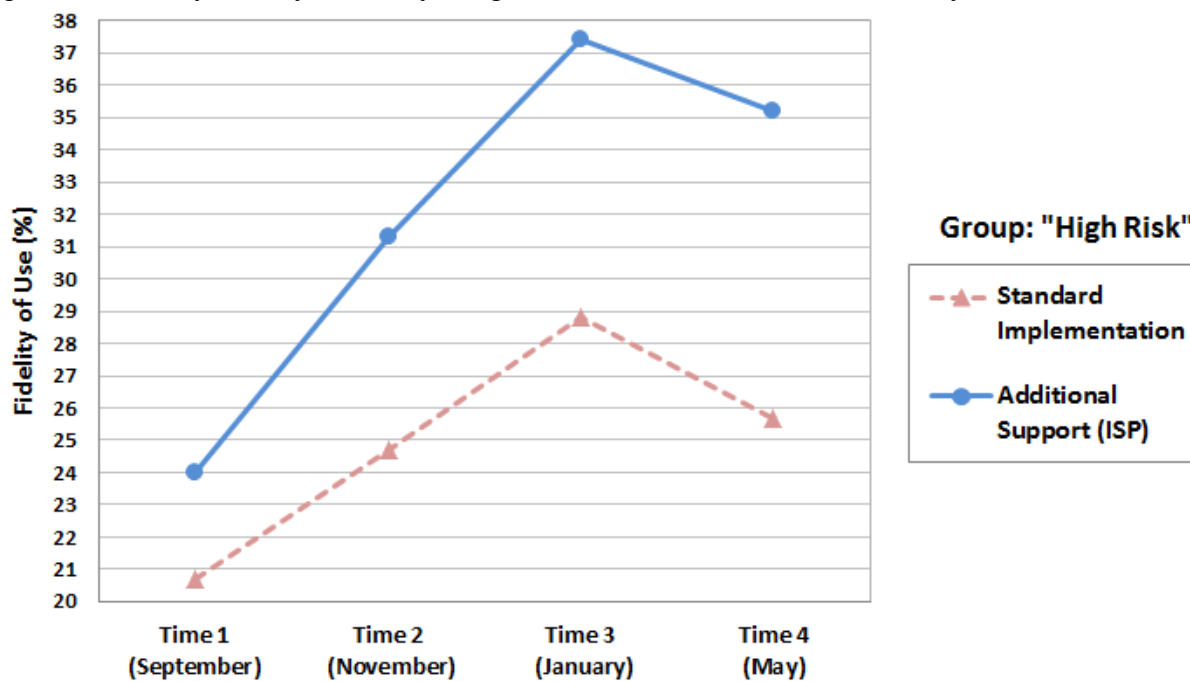
Both the ISP & Non-ISP schools had similar rates of fidelity in the month of September (i.e., ~57% of students using the program with fidelity as defined above). The fidelity rates for both groups increased over the school year. Importantly, across the year, the students in schools with ISP support had significantly higher fidelity rates than those without ISP support, $F(1, 4779) = 5.55, p < .05$ (see Figure 2).

Figure 2. Monthly fidelity of use by all students across the school year



A more detailed analysis was conducted on the High Risk students. The advantage of the ISP support was even more pronounced for this category, as ISP-supported school students had much higher fidelity rates (i.e., 35% vs. 25%) (see Figure 3).

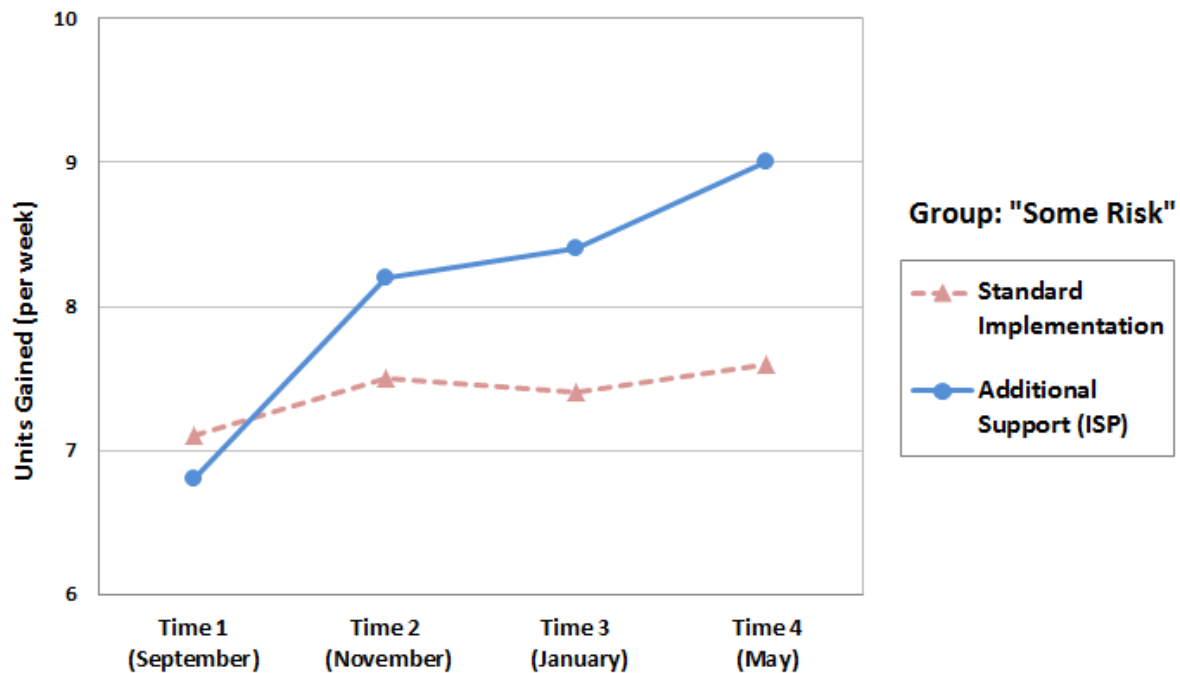
Figure 3. Monthly fidelity of use by “High Risk” students across the school year



Student Progress

Both the ISP and Non-ISP school students had similar rates of progress in September (i.e., ~ 8 units per week). For the Non-ISP school students, there was no statistical change in student outcomes across the school year. In these schools, students completed between seven and eight units per week every month. In contrast, the students in the ISP supported schools showed significantly higher rates of progress across the remaining three time periods, increasing from seven to nine units per week, $F(1, 4779) = 89.2, p < .001$. A more detailed analysis was conducted on the intermediate “some risk” students. The advantage of the ISP support was even more pronounced for this category, as ISP-supported school students had much higher rates of progress (i.e., 9.0 vs. 7.6 units per week) (see Figure 4).

Figure 4. Monthly units gained by “Some Risk” students across the year



Discussion

Previous work has shown that implementing blended learning programs can be challenging for educators (Horn, Gu, & Evans, 2014). Many vendors have started offering implementation support packages to help educators better implement programs so that students make better progress. The current study examined the impact of an instructional coaching professional development that incorporated aspects of continuous improvement models on improving student usage and progress in a blended learning literacy program. Instructional coaching models explicitly address the needs of individual educators and treat the educator as a partner in the professional development (Beglau et al., 2011; Ehsanipour & Zaccarelli, 2017). Continuous improvement models focus on iterative “plan-act-assess” models focused on improving student outcomes (Park et al., 2013). There have been few studies on the impact of implementation support for blended learning products, and fewer still that focus on the intentional integration of instructional coaching and continuous improvement.

Specifically, as part of the Lexia ISP, the Implementation Manager uses instructional coaching approach to providing professional development to provide educators with support to be better equipped to implement the blending learning program with their students and staff. Acting as a resource, the Implementation Manager is able to help educators better understand what is needed

to be able to use the program with fidelity and leverage the resources provided in the program. This dedicated coaching support from the Implementation Manager likely lead to the success of the ISPs. In addition, the Implementation Manager leveraged pieces of a continuous improvement model to help the educators at both the leadership and classroom level better implement the product. Specifically, there were daily, weekly, and monthly “plan-act-assess” practices to improve student outcomes (Park et al., 2013).

Altogether, the findings presented above reflect positively on the impact of the implementation support provided, and, in all likelihood, the ISPs had still more powerful downstream impacts on student growth and learning beyond what was examined in the present study. First, the current study demonstrated that the ISPs can lead to greater program usage fidelity. Previous research has shown that with increased fidelity students are more likely to reach grade-level benchmarks and demonstrate higher performance on standardized measures of reading skills (Schechter, Macaruso, Kazakoff, & Brooke, 2015). Second, implementation support can lead to greater program progress, which previous work has demonstrated is also predictive of increased standardized literacy assessment gains (Prescott, Bundschuh, Kazakoff, & Macaruso, 2017). More specifically, in comparison with the non-implementation supported school students, the students in implementation supported schools completed an additional reading unit every week. When viewed in terms of a standard 36-week school year, the cumulative result of this effect is substantial.

Limitations

Although the present findings cast Lexia’s ISPs in a very positive light, this study is not without limitations. Schools and districts decided whether to purchase an implementation service package and were not randomly assigned to condition. Therefore, the authors were not able to control for all potential differences between implementation supported and unsupported schools (e.g., differences in school or administrator buy-in). Not examined here were the specific pieces of the instructional coaching model that proved to be most successful to help improve student usage and progress. Future work could help disentangle the unique contributions of instructional coaching and continuous improvement. It also would be worthwhile examining explicit coaching nature of the relationship as opposed to direct instruction.

Conclusion

In conclusion, the current research project demonstrates that it is possible to thoughtfully scale implementation support to a wide range of educational contexts, and that such an approach to supporting implementation has positive impacts on student growth and learning. Those wishing to support educators, school, and districts in implementing blended learning and other technology programs should consider educator support programs that incorporate instructional coaching and continuous improvement approaches.

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