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Annemarie H. Hindman^a, Emily K. Snell^a, Barbara A. Wasik^a, Kandia N. Lewis^a, Carol Scheffner Hammer^a & Charlene Iannone-Campbell^b

^a Temple University

^b Baltimore City Public Schools

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Research and Practice Partnerships for Professional Development in Early Childhood: Lessons From ExCELL-e

Annemarie H. Hindman, Emily K. Snell, Barbara A. Wasik,
Kandia N. Lewis, and Carol Scheffner Hammer

Temple University

Charlene Iannone-Campbell

Baltimore City Public Schools

This article describes how a research–practice partnership has informed the iterative development of a web-mediated early childhood language and literacy professional development (PD) intervention. Funded through the Investing in Innovation (i3) program, this new PD model is based on an effective in-situ intervention. As we translated the face-to-face model into a largely web-mediated approach, we partnered with educators to ensure that the resulting intervention was feasible and effective in real-world classrooms serving children at risk. Specifically, an educator advisory board provided ongoing input about the PD. Further, pilot teachers completed the training and provided feedback through a survey about the usability and effectiveness of the training modules, coaching, and instructional strategies in classroom settings. Findings suggest that research–practice partnerships that gather teachers’ situated, comprehensive, and insightful perspectives can be invaluable in developing PD interventions. Collaboration between school districts and university researchers is essential in this iterative development process.

Professional development (PD) is critical for teachers to learn new skills and implement the most current, research-based strategies in their classrooms (Tout, Zaslow, & Berry, 2006). This is especially true for early childhood teachers trying to learn specific techniques to encourage vocabulary and language development. However, to be effective and sustainable, PD must reflect both the empirical evidence regarding what helps children learn and the practical affordances and constraints of real-world classroom settings. This article examines one approach to integrating researcher and practitioner expertise in the collaborative development of a web-mediated PD intervention for teachers in early childhood (i.e., preschool through first grade) serving children in poverty.

THE IMPORTANCE OF EARLY VOCABULARY DEVELOPMENT

Early childhood is an essential time for the development of vocabulary and other language skills that support academic success in first grade and beyond (Dickinson, Golinkoff, & Hirsh-Pasek,

Correspondence should be addressed to Annemarie H. Hindman, Ph.D., Associate Professor, Temple University College of Education, 7 Olivia Drive, Yardley, PA 19067. E-mail: ahindman@temple.edu

2010; Dickinson & Porche, 2011; Duncan et al., 2007). Children with stronger word knowledge can decode words more rapidly (Perfetti, 2010) and more easily comprehend the meaning of a text as a whole (Gough, Ehri, & Treiman, 1992). Vocabulary knowledge also helps children understand science and mathematics (LeFevre et al., 2010; Miller, Major, Shu, & Zhang, 2000) and build positive relationships with peers (Menting, Van Lier, & Koot, 2011; Spere & Evans, 2009).

Unfortunately, children in poverty regularly enter formal schooling with vocabulary knowledge approximately a full standard deviation below that of their more affluent peers (Department of Health and Human Services, 2006). Many factors contribute to this gap, including limited access to books and other learning materials (Bradley, Corwyn, McAdoo, & Coll, 2001), as well as less elaborated linguistic exchanges with caregivers (Huttenlocher, Waterfall, Vasilyeva, Vevea, & Hedges, 2010). For example, Hart and Risley's (1995) seminal research demonstrated that higher socioeconomic status (SES) families talked more to children and invited children to use more language than did lower SES families; subsequent studies have identified similar patterns (e.g., Dickinson & Tabors, 2001; Hart & Risley, 1999). Therefore, identifying and providing supports for vocabulary development of young children in poverty in the earliest grades—when the achievement gap is relatively narrow—is an important goal for educators, researchers, and policy makers.

The Potential of Early Childhood Classrooms to Support Vocabulary Learning

For all children, but especially for those from low-income backgrounds, ages 3 to 7 years play a potentially powerful role in shoring up early vocabulary skills (Bowers & Vasilyeva, 2011; Hanson et al., 2011; Reynolds, Englund, Ou, Schweinhart, & Campbell, 2010). Basic research highlights several key principles of early word learning at school (and home). First, children need explicit exposure to new words to learn and remember them, including definitions, pictures, or props. Second, children need to use words and receive meaningful feedback on their efforts; adults might ask open-ended prompts to elicit language from children and then follow up on what children have said to extend the conversation. Third, children often need multiple iterations of these opportunities to learn and remember new words, rather than just a single exposure. Together, these three principles imply that early word learning is bolstered by systematic, intentional instruction, teaching around themes or big ideas, rereading relevant books, and conducting extension activities that saturate the classroom or home with the target words.

The Need to Strengthen Early Vocabulary-Related Instruction

Unfortunately, research clearly indicates that business-as-usual practices in early childhood classrooms typically foster minimal vocabulary growth (Pianta et al., 2007; Skibbe, Connor, Morrison, & Jewkes, 2011). For example, the Preschool Curriculum Evaluation Report Consortium (2008) study revealed that none of the widely used curricula under examination raised preschoolers' vocabulary on standardized measures, although more than half of the curricula targeted this outcome. Similarly, only two (Landry, Anthony, Swank, & Monseque-Bailey, 2009; Wasik & Hindman, 2011) of the more than 100 interventions funded by Early Reading

First have been shown to raise standardized vocabulary scores, although other Early Reading First projects promoted other skills (Jackson et al., 2007).

These limited effects on vocabulary may arise because vocabulary instruction in the early grades is relatively rare. Without clear guidance from curricula on when and how to teach new words (Neuman & Dwyer, 2009), many early childhood teachers devote less than 1% of the class day (about 5 mins) to oral language and vocabulary (Beck & McKeown, 2007; Biemiller, 2001; Champion, Hyter, McCabe, & Bland-Stewart, 2003; Cunningham, Zibulski, Stanovich, & Stanovich, 2009). Moreover, even during potentially vocabulary-intensive activities, such as book reading, teachers often use relatively little higher order talk or open-ended questions, resulting in missed opportunities for vocabulary development (Massey, Pence, Justice, & Bowles, 2008; Pence, Justice, & Wiggins, 2008; Tsybina, Girolametto, Weitzman, & Greenberg, 2006).

Further, beyond explicit teaching, the quality of implicit vocabulary instruction in the general language environment may be relatively low, especially in classrooms serving children in poverty (Justice, Mashburn, Hamre, & Pianta, 2008; La Paro et al., 2009; LoCasale-Crouch et al., 2007; Stuhlman & Pianta, 2009; Wasik & Hindman, 2011). For example, early studies of the Classroom Assessment Scoring System (CLASS) tool in a variety of preschool settings (see, e.g., Pianta, La Paro, & Hamre, 2008) generally revealed Instructional Support scores around 2 (*low quality*) to 3 (*low-moderate quality*) on a scale from 1 to 7.

Promising Avenues for Teacher PD

In recent years, PD has been recognized as a tool to improve the quality of early childhood classroom language (and literacy) environments. A substantial body of evidence (Yoon, Duncan, Lee, Scarloss, & Shapley, 2007) shows that, especially for complex practices such as vocabulary-rich conversations with children, brief (e.g., 1-or 2-day) and decontextualized (e.g., not in the classroom) trainings do not work particularly well. As a result, delivery of content paired with either onsite or remote coaching has become widespread (Dickinson & Brady, 2006; Hamre et al., 2013; Landry et al., 2009; Powell, Diamond, Burchinal, & Koehler, 2010; Wasik & Hindman, 2011). In coaching models, teachers are paired with an expert educator who provides support. Models vary widely in the nature, frequency, and duration of this support, from a few times a year (Dickinson & Brady, 2006) to nearly once a week (Wasik, Bond, & Hindman, 2006). Coaches typically help teachers in their own classrooms, either by visiting the classroom (Wasik et al., 2006) or providing guidance remotely using video that teachers record of their own classroom practices (Pianta et al., 2008).

Compelling evidence (Pianta et al., 2008; Powell et al., 2010) suggests that, at least for teachers' literacy practices and children's phonological and letter-related skills, web-mediated coaching may be as effective as onsite coaching. However, to date, there is no evidence that web-mediated coaching promotes gains in children's vocabulary development, at least on standardized measures (but see Mashburn et al., 2008, for indications that the MyTeachingPartner intervention promotes vocabulary gains on other, nonstandardized tools). This may suggest that onsite coaching is essential for helping teachers make the profound changes to their practice that would engender these broader gains. Notably, the best-practice patterns of language exchange outlined previously (e.g., open-ended questions, feedback) involve considerable

give-and-take between teachers and children, which—in light of the automated nature of many conversational patterns—can be difficult for teachers to change amid the other demands of their job. However, an alternative implication is that, because vocabulary has not been the primary goal of other effective, web-mediated coaching interventions, it would be possible to use this kind of coaching to build vocabulary if a more vocabulary-focused approach were employed.

Teacher Input in Developing PD

One strategy for optimizing the effectiveness of web-mediated PD is to design such interventions in collaboration with, and using extensive input from, the teachers who ultimately will use it. The evidence in favor of teacher input into PD is extensive (Lee, 2005); for example, teachers report less engagement with PD when they consider recommended teaching practices as inappropriate or not within reach (Dickinson, Watson, & Farran, 2008). Yet a review of the literature on PD and language and literacy for teachers of young children indicates a paucity of research on how teacher input can be optimally integrated into the development of the PD. More striking, although many interventions acknowledge the importance of teacher input and note that it played a key role in their development (Darling-Hammond & Richardson, 2009; Garet, Porter, Desimone, Birman, & Yoon, 2001), almost no research clearly describes how that input was collected and used (for two exceptions, see Diamond & Powell, 2011, and Dickinson et al., 2008). Consequently, there are few available guides for researchers and practitioners regarding how they might collaborate to construct feasible and effective PD, including around language and vocabulary in early childhood.

Certainly, evidence shows that teacher input into PD (and other content) can, and does, take many forms (Gersten, Dimino, Jayanthi, Kim, & Santoro, 2010; Wagner, 1997) and is useful throughout the entire development process, including before and as procedures and tools are developed (i.e., more formative guidance), as well as after development but during piloting (i.e., more summative guidance; Diamond & Powell, 2011). One approach, employed in this project, is to convene an advisory board comprised of expert teachers and potentially other stakeholders to provide input on the content and format of the PD. Advisory boards are common practice in many studies (including, but not limited to, those focused on early childhood education), particularly in community-based research approaches (Israel et al., 2005). Although these boards are implemented in varied ways, they generally include two or more experts in a relevant field, whether researchers, practitioners, policymakers, or others. Advisory-board feedback is usually intended to be used in the tradition of a colearning agreement (Wagner, 1997), providing largely formative feedback such as examining early drafts of materials or procedures. As mentioned, though, our literature search revealed no explicit discussion in the research or practitioner literatures about how these potentially essential tools have been, or could be, used in early childhood PD regarding language and vocabulary.

A second approach, also tested in this project, takes a more summative approach by collecting feedback from educators who have used the PD in real-world classrooms to gain insight into what works and where improvement is needed. This feedback could be gathered via individual or group interviews, although these methods can be time- and resource-intensive. In contrast, self-report surveys can be relatively rapid to complete. Further, they offer the opportunity to both request feedback on particular aspects of PD and to allow teachers to volunteer ideas. It

is important to note, however, that if feedback from end-users is to inform an iterative development process, this feedback must be translated into changes to the PD intervention.

As mentioned, the value of these approaches to gauge teacher input into PD is widely accepted but rarely clearly articulated or studied. This article aims to describe an effective partnership in which researchers and practitioners shared ideas as PD for high-need preschool, kindergarten, and first-grade settings was designed.

This Study's Aims

This study is part of a larger project to develop an effective, web-mediated coaching intervention for teachers of young children that supports best practices for language and vocabulary development in the classroom. Exceptional Coaching for Early Language and Literacy—enhanced (ExCELL-e) is a web-mediated PD model for preschool, kindergarten, and first-grade teachers in high-poverty settings. ExCELL-e is based upon ExCELL, a face-to-face coaching intervention largely targeting native speakers of English. The translation from face-to-face to online delivery, as well as the integration of content focused on dual language learners (DLLs) along with native speakers of English, requires a good deal of revision. Specifically, the project translates (a) in-person workshops into online modules; (b) coach demonstrations in each teacher's classroom into videos of exemplary practices; and (c) question-and-answer sessions at workshops into online assessments. Consequently, we recruited two advisory boards of expert educators to guide our project in the first year of development. In addition, at the end of the second (pilot) year, we surveyed pilot teachers after they had used the web-mediated training and techniques from September to June in their own classrooms.

In this article, we describe (a) the board members' formative guidance on our project and (b) the pilot teachers' summative feedback on the PD after they had used it for 1 year. Specifically, we focus on teachers' views of how to (a) group extensive, complex language and literacy topics into brief but comprehensive modules, (b) gauge teachers' understanding of content through short assessments called *Check Your Understandings*, and (c) select and present videos of best practices. We also discuss how these perspectives shaped the intervention that ultimately resulted. In this way, we elucidate one example of collaborative research–practice development, in the critical area of teacher PD.

METHOD

Procedure

Larger Project

In ExCELL-e, teachers complete a brief introduction, followed by nine online instructional modules over 1 academic year (approximately one per month) targeting the development of oral language skills, strategies for building conversations, techniques for reading books, and practices for extending book vocabulary into classroom activities. All modules address instruction of native speakers of English, as well as DLLs. Each module includes approximately three

steps, each of which is a specific instructional strategy (e.g., choose vocabulary words from a storybook, ask open-ended questions, or provide meaningful feedback) along with videos demonstrating exemplary use of the strategy in an early childhood classroom. After each step, teachers complete an embedded *check your understanding* assessment, including multiple-choice or true–false items, on which they aim to score 100% (with missed items resulting in a check-in from a coach). At the conclusion of each module, teachers videotape themselves using target strategies in their classrooms, and they receive personalized feedback via Skype or phone from an expert coach with whom they work throughout the year.

In this project, we devote 1 year to piloting prekindergarten materials, a second year to more formally piloting prekindergarten materials and initially piloting kindergarten and first-grade materials, a third year to more formally piloting kindergarten and first-grade materials, and a fourth year to conducting a randomized controlled trial in prekindergarten, kindergarten, and first grade. In this article, reflecting on data collected from the first 2 years of the project (2012–2014), we discuss the substantial guidance provided by the advisory board in Year 2, as well as the feedback from the pilot teachers provided at the end of Year 2.

Description of the University–School District Partnership

The relationship between the university principal investigators and the early learning staff (ELS) in our two partner school districts began long before the i3 grant was written or funded. Both school districts are urban districts with a high concentration of children in poverty (i.e., 77% in one district and 84% in the other). The former district has a high concentration of DLLs, and the number of DLLs is growing in the latter. Both districts have experienced a great deal of administrative change in recent years, but are now closely focused upon providing high-quality early childhood experiences for children of all language backgrounds.

Factors Supporting Partnership

Several factors have made this collaboration successful. First, throughout the previous decade, district personnel and university researchers have worked together on varied endeavors from grants to district-level PD. Through this work, they developed a shared vision of effective PD, shaped by both empirical evidence and the unique assets and challenges of the districts. The partners built considerable mutual respect for one another and frequently practiced shared decision-making and consensus-building in their collaboration. It is also important to note that this grant-related work was aligned with the districts' early learning divisions' strategic plans, focused in large part on building teachers' skills around language and literacy instruction, as well as on fostering the language learning of the growing segment of their student population that was learning two languages. Therefore, grant-related activities could be integrated into the districts' work, rather than creating an additional, unwanted burden.

Recruitment of Advisory-Board Teachers

Teachers were recruited through ELS supervisors, who recommended them as excellent teachers who would be already knowledgeable about content and able to suggest ways to make information clear for their colleagues. Nominated teachers were observed in their classrooms

by a member of the research team to verify their skill set. After a personal invitation from the research team, teachers agreed to participate on the advisory board for at least one full school year.

Logistics of Advisory Board

Educators met once a month with the research team for 2 hrs as an advisory board over 1 academic year (September to June). As the ExCELL-e project is being developed in two school districts about 2 hrs apart (one major city along the northeast corridor and one smaller city surrounded by a largely rural area), it was most feasible to hold two separate meetings each month. Teachers were reimbursed for their time at an hourly rate commensurate with district pay, and food was provided. The meetings were also attended by one member of each district's supervisory staff to maintain open lines of communication.

Before a meeting, the research team e-mailed the educators drafts of one or two ExCELL-e modules. Educators completed a feedback form noting highlights and suggesting changes that would improve usability. Meetings involved 2 hrs of conversation around the feedback forms, and participants were also encouraged to bring up new ideas. Educators also often watched one or more of the videos of exemplary teaching practices and discussed highlights and problems. During the meeting, a research team member took detailed notes.

Recruitment of Pilot Teachers

Pilot teachers were recommended by ELS supervisors as moderately strong teachers who were well positioned to benefit from additional support in language and literacy instruction. A member of the research team observed nominated teachers in their classrooms and talked with them to gauge their willingness to try new techniques and receive feedback. After a personal invitation from the research team, teachers agreed to participate in the pilot for 1 full school year (September-June).

Logistics of Pilot Teacher Survey

At the end of the pilot year (in June), all pilot teachers completed a survey about the feasibility and effectiveness of the intervention.

Participants

Advisory Board

Eight expert early childhood teachers were involved in the advisory board groups. All teachers were women. The sample was fairly diverse, with two reporting minority (African American or Hispanic or Latina) ethnicities. All teachers had at least a bachelor's degree, and most held master's degrees as well. All held state certification. Most teachers had worked in education for approximately 5 years. Both attending administrators were White and held master's degrees;

one was a man and one was a woman. In describing results, teachers are referred to as Teachers A through H, and administrators are referred to as Administrators A and B.

Pilot Teachers

Sixteen participating pilot teachers completed the confidential survey (100% participation rate). Pilot teachers were all women. The sample was 88% White and 12% minority. All teachers had at least a bachelor's degree and state certification, and most held master's degrees as well. On average, they had worked in the classroom for 13 years. Approximately 56% taught prekindergarten, whereas 19% taught kindergarten and 25% taught first grade. No pilot teachers served on the advisory board. In describing results, Pilot Teachers were referred to as Pilot Teachers A through P.

Measures: Data Sources and Coding

Advisory Board

As mentioned, primary data sources included teachers' feedback forms regarding their review of the modules, as well as notes on discussion that occurred in the group. All documents (forms and notes) were compiled for all the board meetings, which occurred between September 2012 and June 2013. A researcher who did not attend meetings collated teachers' remarks on the feedback forms and from the discussions. Remarks were coded to identify common themes and points of disagreement. Given that discussion began around structured but open questions on forms and in the group meeting (i.e., "What did you like about this?" "What would you change?"), we searched for themes with these key questions in mind. We also searched for information about why teachers held these views (which came largely from conversation).

Survey

At the end of the pilot year, a link to an anonymous, online survey was e-mailed to all participating teachers. The survey included 23 items on the feasibility and effectiveness of the modules, assessments, and videos, among other aspects of the intervention. All questions had fixed responses, although teachers were given opportunities to comment if they chose. The survey required approximately 20 min to complete.

RESULTS

Although district partners played a role in setting up and attending the focus groups, researchers analyzed and interpreted the data. This arrangement was determined based on partners' expertise, as the district partners had the content and implementation expertise and the researchers had the expertise to collect information and summarize it. Further, teachers and administrators were already putting considerable time into the project through their monthly participation in multihour meetings.

Advisory Board Input

Results are summarized in the following section, along with examples of specific feedback from the advisory board.

Content or Topic of Modules

Several main points emerged regarding module content.

Feasibility of suggestions. Advisory-board educators were generally comfortable with the best-practice suggestions posited in modules (e.g., open-ended questions, feedback, and highlighting vocabulary), but raised questions about the feasibility of some techniques. First, several teachers noted that rereading books four times would be burdensome for teachers; consequently, we reduced the frequency of suggested rereadings. Advisory board members also noted that our suggestion that teachers explicitly delve into 15 different words per week would be challenging and, perhaps, so inconsistent with common practice (where little vocabulary was explicitly taught) that teachers would have difficulty adopting intervention behaviors. As a result, we reduced the number of words and provided more clarification regarding the relative ease of introducing new words when instruction is organized around themes or big ideas.

More generally, advisory board members consistently recommended that each module should deal with only one specific classroom instructional strategy (e.g., holding conversations), resulting in more, but shorter, modules. For example, in the October meeting, educators considered a draft of a module including strategies for both selecting vocabulary from books and then reading the books. Advisory-board educators were concerned that their peers often have difficulty selecting vocabulary, meaning that combining these important topics might overload them. Further, one advisory-board teacher noted that teachers in training might conflate the two topics, coming away with the idea that vocabulary should only be related to book reading or the classroom literacy block (Teacher C, October 22). Consequently, we divided these topics into separate, shorter modules. This resulted in nine modules and a brief introduction, as opposed to our initial plan of five longer modules. Advisory-board members also appreciated the inclusion of three specific steps within each module, each of which provided a small packet of information (mentioned initially by Teacher A in October meeting). They advocated for keeping this three-step organization fairly consistent across modules, which we have endeavored to do.

Integration of DLL-related content. Advisory-board educators who worked closely with DLLs favored embedding all DLL-related content into modules, rather than pulling content out into free-standing DLL-only pieces. For example, in the September meeting, they frequently remarked that strategies to support DLLs would help all children, as all children in their classrooms faced substantial disadvantages (e.g., poverty) and would benefit from explicit and often basic, contextualized instruction. One noted that “all children are English language learners” (Teacher B, September 18). However, advisory board members with less knowledge of DLLs were in favor of a distinct, DLL-specific module that might make this information more salient and distinct. Ultimately, the research team created a distinct module, but also embedded some content about DLLs into primary modules.

Embedded Assessments of Module Comprehension

Advisory-board educators reported that embedding multiple-choice and short-answer assessments—our *check your understanding* questions—into the content motivated their comprehension as they read the modules. However, they frequently highlighted unclear word choices or otherwise confusing questions. For example, one *check your understanding* included questions about selecting the best vocabulary words for children from a set of possible words. Educators cautioned that this might be challenging for teachers, because the *best* words might differ across children, and that specific contextual guides would be necessary to help teachers arrive at the same, correct answer. In response, we conducted a careful audit of these questions and sought pilot-teacher feedback on revisions.

Exemplary-Practice Videos

Advisory-board educators uniformly agreed that videos, and even still images, were preferable to text. They particularly appreciated that the expert teachers featured in the videos taught in urban settings with students like their own; they viewed this ecological validity as important for convincing teachers in training that the suggested techniques would work in their classrooms. Advisory-board teachers frequently commented that they loved the videos; for example, Teacher E noted, “The best parts are the videos because seeing [ExCELL-e] in action is so valuable” (March 29). Indeed, they asked for more videos, and we greatly increased our video-clip selection to more than 50 for each grade. Advisory-board teachers did, however, specify that videos should be brief and should clearly show the desired behaviors they were selected to highlight. As a result, we kept videos to less than 2 min in length.

General Perspectives of Advisory Board

In part as a result of the open structure of the meetings, teachers raised additional points that they found important about the PD.

Effects of poverty and disadvantage on children. Educators frequently remarked on the broad effects of poverty on children and families they served, and requested that the intervention be sensitive to these issues. First, they asked that modules provide some explicit information about the extensive support in vocabulary development that some or many children in high-poverty early-childhood classrooms may need; they noted that teachers in training would need to be prepared to appropriately anticipate (potentially high levels of) student needs around vocabulary learning (September meeting). Similarly, they requested specific tools, such as pictures showing words or ideas targeted in the classroom to help families work with children (October meeting). Although family involvement tools were beyond the scope of this project, we are considering ways to build in these resources in future. As a final example (November meeting), teachers noted that two books provided by the project, *Don't Laugh, Joe* (Kasza, 2000) and *Chicken Sunday* (Polacco, 1998), included information about death, which might be upsetting for children living in relatively violent communities; we adjusted our presentation of these resources.

Importance of diversity and differentiation. At nearly every meeting, advisory board members mentioned the importance of differentiated instruction. For example (December meeting), one teacher provided a striking anecdote of a recent activity in which she presented a picture of a worm to two DLLs, one of whom identified it as a snake and another of whom made a gesture indicating that he thought it was an edible food. The teacher inferred that, although both children needed support to build their English vocabulary, they had very different frames of reference and would need different instructional approaches to progress with the concept.

Consequently, these educators advocated for the inclusion of differentiated instruction in the ExCELL-e day. In particular, discussion of center-time activities during the January meeting began a conversation in which all participating board members argued in favor of conceptualizing small-group center time as an arena for differentiated instruction. This was somewhat more complex than the research team's view that small-group work is a time to expose children to target vocabulary, whether through differentiated or relatively more uniform techniques. Also, advisory-board members requested that modules more explicitly support pilot teachers who were interested in differentiating their instruction, especially for DLLs. For example, regarding the prerecorded books we provided in Spanish, teachers asked us to provide cues (e.g., dings when the page should be turned) to help teachers who may not speak Spanish use them with children. Since then, we have incorporated these suggestions into our practices.

Need for specific information for teachers. Advisory-board members were very respectful of their peers who would eventually complete the modules, while also acknowledging potential gaps in their understanding or constraints on their time. They consistently pushed the research team to provide specific details and to-the-point, rapidly digestible content (e.g., three steps to each module, clear lesson plans). We edited text with these characteristics in mind.

Varied approaches to instruction. Advisory-board members did not always hold the same fundamental views. It often became clear through discussion that teachers had different approaches to even very basic instructional tasks. For example, in the small-city district, different curricula were in use, meaning that teachers integrated a variety of techniques (September meeting). In the major city district, there was a standard curriculum, but teachers varied in key aspects of implementation, such as book choice and frequency of reading and rereading. Focus of instruction varied (e.g., decoding, comprehension) both within and between grades. No advisory-board member expressed any concern about this variation; instead, teachers appeared comfortable with these differences and open to the idea that different approaches could work equally well in different contexts, and they advocated for flexibility in the strategies in the modules. For example, one advisory board noted that future ExCELL-e users would want to know that the model could be integrated into any curriculum they used, rather than requiring them to add additional tasks to their existing workload (May 23). Thus, we emphasized this aspect of the PD in modules.

Pilot Teacher Perspectives

Results from the survey of pilot teachers suggested that, in general, the approaches suggested by the advisory board and incorporated as part of the ExCELL-e model worked well for

pilot-teacher implementation, but that there were still opportunities for improvement. In the following, we report percentages of teachers expressing particular views; note that teachers were often asked to choose all applicable response options, meaning that percentages may not sum to 100%.

Content or Topic of Modules

Overall, findings from the pilot-teacher survey suggested that our efforts to divide module content into manageable pieces were successful, with 88% of teachers reporting that the modules provided valuable information and 0% reporting problems with the organization or layout of the web site. No module was identified as particularly challenging by more than three teachers (25% of sample), suggesting that, in general, modules were comprehensible. Fully seven of the nine modules were rated as especially helpful by at least one-third of the teachers, indicating that the materials provided new and practical information. Interestingly, the fourth module, focusing on how to develop children's vocabulary, was rated the most highly (81% designated it especially helpful). Within modules, teachers rated the strategies of asking open-ended prompts and rereading books as the most helpful techniques. Most teachers (63%) completed the modules within 45 min; 19% reported taking 45–50 min and 19% needed 60 min or longer.

Because the advisory board suggested that rereading a book four times was too ambitious for standard classroom practice, we looked closely at how often teachers ultimately read books. Six percent of teachers reported reading each book once, 75% read each book twice, and 19% read each book three times. When asked about obstacles to rereading, 63% reported too little time, 50% needed to move on to introduce new content, 19% found that children lost interest, and 13% encountered no obstacles. Consequently, the research team edited the rereading module to include discussion of, and troubleshooting for, these real-world obstacles to rereading. The DLL module was rated as having the most novel content, with only two teachers noting familiarity with the material, and about half (44%) rating it as especially helpful.

Embedded Assessments of Module Comprehension

The specific feedback provided by advisory-board teachers resulted in improvements in the *check your understandings* presented to the pilot-year teachers, and 31% of pilot teachers thought no further changes were needed. However, 66% of teachers indicated that the clarity of the questions could use still more improvement. Teachers thought the quantity of questions was appropriate, with zero teachers requesting more or fewer questions.

Exemplary-Practice Videos

As with advisory-board teachers, pilot teachers were very positive about videos, generally rating them as very helpful (62%) or somewhat helpful (38%). Although 13% of teachers felt that no changes to videos were warranted, a minority (25–30%) suggested that more videos would be useful, and that videos featuring examples of what not to do would help them learn the PD content. And, consistent with the interest in the DLL module described previously, more than half (56%) of teachers requested more videos of DLL practices, which we will collect later.

General Perspectives of Pilot Teachers

In general, teachers were very positive about their experiences using the online PD and implementing the targeted strategies in the classroom. One said, “I really loved the experience and felt like it helped me grow as a teacher” (Pilot Teacher G). The approach to coaching was also seen as successful by many teachers. One said, “My coach was always very positive, even when I was not. This really helped motivate me to keep practicing and refining the techniques presented in the modules” (Pilot Teacher P). No teachers provided negative critiques. All teachers rated the site as very (50%) or somewhat (50%) easy to use. Moreover, most reported that the site provided useful information (88%), was easily navigable (63%), and was visually appealing (56%). Regarding general improvements to the site, 13% of teachers requested no changes; several asked for less text (13%) or more videos (19%). We continue to edit modules with an eye toward parsimony of text.

DISCUSSION AND IMPLICATIONS

As effective programs move to scaling up their interventions, web-mediated PD will become more common. These findings illuminate how to maintain the integrity and effectiveness of PD delivered via the web. In this project, advisory-board teachers’ perspectives were invaluable in constructing content and presenting it in appealing and comprehensible ways; pilot teachers’ perspectives elucidated how the new intervention actually worked in the field and what further changes were needed. These professionals had a rich knowledge of content, but perhaps more essential was their deep knowledge of practice and willingness to share constructive feedback with the intervention developers.

Lessons Learned

Given the findings previously detailed, the research and practice partners offered several potential recommendations for other web-mediated (and perhaps face-to-face) PD projects. First, including an advisory board of expert teachers may provide unique guidance, particularly with regard to practical issues. Second, providing structure to conversations (i.e., “What do you like about this piece of the project?” or “What would you change?”) helps to focus exchanges on essential topics. However, allowing teachers to digress somewhat, particularly by providing (and building off of peers’) classroom anecdotes is also critical for understanding what teachers believe about the content and delivery of effective PD and why they hold these beliefs. Finally, a major project such as ExCELL-e involved a considerable time commitment from teachers; meetings were scheduled only after consulting with teachers, and in general, there were few or no absent teachers. Some flexibility to allow for variation in teachers’ schedules and personal lives helps to protect long-term commitments to the project. Compensating teachers and providing food also likely supported continued engagement. In addition, using time-efficient methods to gather feedback, such as surveys, can complement more time-intensive methods such as in-person meetings.

We can also glean suggestions for nurturing strong research–practice partnerships. We believe that two factors made this collaboration successful. First, we built on preexisting collaborations more than a decade in the making, leveraging this mutual understanding and trust to embark on a new project together. Second, we fostered frequent interactions between project PIs and district administrators, in part through administrator attendance at advisory board meetings.

In sum, as anticipated, both the university partners and the ELS partners benefited from feedback that will help future iterations of PD programs.

LIMITATIONS

Although this study provides some insights into what teachers value about online PD for early language and vocabulary, as well as how more formative advisory boards and more summative pilot teacher feedback can benefit the development of educational interventions, some limitations highlight promising directions for future research. One limitation of this study for both the researcher and practitioner partners was the inclusion of a fairly small number of teachers from just two districts. Although this number was selected in light of the availability of expert teachers available in these districts, the need to keep stipend payments reasonable, and the desire to keep groups small enough to facilitate conversations, our sample size was small. Future research might examine larger groups to ensure that diverse perspectives are captured and that robust conclusions are drawn. Second, regarding the pilot teachers, we included only one round of year-end survey data. Future work might follow pilot teachers over time, examining whether and how their guidance and norms shift, and which or what type of suggestions bear fruit when integrated into the intervention. One additional limitation of particular relevance for the research team was that, without child data on standardized measures, it is difficult to ascertain the extent to which the intervention supported language development.

CONCLUSION

When considering the most effective content and delivery tools for web-mediated PD focused on early language and vocabulary development, collaborative partnership between school districts, teachers, and university researchers is essential for ensuring that the intervention can be implemented in classrooms with benefits for children and teachers.

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