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Using stakeholder feedback to improve online professional development opportunities

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ABSTRACT

Traditional professional development is often characterized as being expensive, time consuming, and lacking impact. In contrast, online professional development provides greater flexibility and is becoming increasingly popular for school personnel. In this article, we report the process and outcomes of gathering feedback to adapt traditional in-person to online training differentiated for the participants to maximize utility, efficiency, and effectiveness in meeting the needs of key stakeholders. Focus groups were conducted with teachers, administrators, and other specialists to gather feedback on content as well as how online learning modules (OLMs) could be tailored to meet specific school site and team needs. We discuss our findings in the context of continuing efforts to improve general and specific professional development opportunities.

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Introduction to the problem

Professional development (PD) occurs at all levels of education and refers to a variety of specialized learning experiences intended to help administrators, teachers, and other educators improve their practices and support student learning (Darling-Hammond, Hyler, & Gardner, 2017a, 2017b, 2017c; Desimone & Garet, 2015; Simonsen et al., 2019). PD can be delivered in person and/or online with participation in virtual experiences (Bahr et al., 2019; Brennan, Sellmaier, Jivanjee, & Grover, 2019). The structural features and characteristics of PD vary by the focus of the activities (i.e., type of content, type of learning, and coherence or contextual fit with participants' professional goals and needs) as well as by organization (e.g., workshop, conference), duration (i.e., total hours as well as span of time), and participation (e.g., groups, teams, individuals; Birman, Desimone, Porter, & Garet, 2000). In many local education agencies, PD is used to support skill acquisition as well as innovative and ongoing practices; and, models of PD vary across districts, with some schools using periodic workshop-style trainings and others using ongoing embedded activities (Brennan et al., 2019; Darling-Hammond et al., 2017c; Kraft, Blazar, & Hogan, 2018; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007). Although research is mixed around the overall effectiveness of PD (Darling-Hammond et al., 2017a; Sumsion et al., 2015), it is generally agreed that if designed and implemented well, it can improve teaching and strengthen practices school-wide (Birman et al., 2000; Darling-Hammond et al., 2017a, 2017b, 2017c; Garet, Porter, Desimone, Birman, & Yoon, 2001; Gast, Schildkamp, & van der Veen, 2017).

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After a review and comprehensive analysis of 35 studies that reported positive links among teacher professional development, teaching practices, and student outcomes, Darling-Hammond et al., (2017a, 2017b, 2017c) reported that effective PD is focused on specific content that is delivered in active learning sessions that support collaboration, use models of effective practice, provide coaching and other support, offer feedback, and include adequate time to learn, practice, and evaluate strategies expected to bring about changes in practice. We designed our professional development to include these features. Specifically, we focused on a singular content-based practice (i.e., problem solving) and used interactive, collaborative activities and other strategies to provide contextualized professional learning. We also included coaching, sharing, and other feedback opportunities to extend the time to learn beyond the online learning sessions.

Team-initiated problem solving (TIPS)

Problem solving and data-based decision making and problem solving is a core feature of frameworks that state education agencies, local education agencies, and schools use to support implementation of practices such as Multi-Tiered System of Support (MTSS), Response to Intervention (RTI), and Positive Behavior Interventions and Supports (PBIS) (cf. Horner, Sugai, & Anderson, 2010; Horner, Sugai, & Lewis, 2015; McCart, Sailor, Bezdek, & Satter, 2014; National Center on Intensive Intervention, 2019; National Center on Response to Intervention, 2010; OSEP Technical Assistance Center on Positive Behavioral Interventions & Supports, 2015); and, more than 25,000 schools across the United States are using PBIS (OSEP Technical Assistance Center on Positive Behavioral Interventions & Supports, 2019). A variety of models for school-based problem solving have been proposed (cf. Bransford & Stein, 1984, 1993; Deno, 2005; Fuchs & Deshler, 2007; Leithwood, 2010; Tilly, 2008); however, research and evaluation findings provide an equivocal picture of the extent to which these approaches are effective or used in schools (Balu et al., 2015; Burns, Peters, & Noell, 2008; Burns & Symington, 2002; Burns, Vanderwood, & Ruby, 2005; Crone et al., 2016; Fixsen, Blase, Metz, & Van Dyke, 2013; Fuchs & Fuchs, 2017). One example of an effective data-based decision making model used in schools implementing PBIS is the Team-Initiated Problem Solving (TIPS) framework (Newton, Algozzine, Algozzine, Horner, & Todd, 2011; Newton, Todd, Algozzine, Horner, & Algozzine, 2009).

TIPS is a six-stage framework of data-based decision making that has been used across tiers within implementations of Positive Behavior Interventions and Supports (PBIS) and validated in two randomized waitlist controlled trials (Horner et al., 2018; Newton, Horner, Algozzine, Todd, & Algozzine, 2012). The success of teams implementing TIPS in these studies, under conditions of rigorous experimental control, establishes TIPS as an evidence-based practice for data-based decision making within education. TIPS professional development typically occurs in a single full-day workshop format, with all members of a given team present and participating (Newton et al., 2009; 2011; Todd et al., 2011). In typical training, teams apply what they have learned in a mock team meeting near the end of the day; and, follow-up coaching for the next two team meetings is an integrated component of TIPS PD (Newton et al., 2009).

Features and characteristics of TIPS PD

Within the TIPS framework, teams first establish foundations for effective meetings, including establishing roles, setting and adhering to an agenda for each meeting, and setting and adhering to a schedule to when team meetings will occur. Roles within TIPS include Facilitator, Minute Keeper, and Data Analyst. Within a TIPS data meeting, the Facilitator guides the team through the agenda (established and disseminated at least one day before the meeting). The Minute Keeper records critical information from the team's problem solving and data analysis discussions onto the TIPS Meeting Minutes form, or similar, for future tracking and follow-up. The Data

Analyst summarizes and interprets data for the team during the meeting and ensures all relevant data will be available for the meeting, at least two days prior. TIPS meetings are efficient, beginning and ending within 10 minutes of the scheduled times, and prompting the team to review the most critical information for rendering and evaluating decisions in a time-sensitive manner. The meeting foundations serve as context within which effective decision making occurs when applying the TIPS problem solving framework.

The TIPS problem solving framework includes six stages: (a) identifying a problem with precision, (b) identifying a goal for change, (c) identifying a solution with a plan for contextual fit, (d) implementation of solution, (e) monitoring impact of the solution, and (f) making a summative evaluation decision. Within the TIPS framework, a goal must specify what change will occur on a given indicator of performance, and by what date the change will occur. Once an appropriate goal has been identified, the team moves onto selecting a solution that it anticipates will meet the specified goal for those involved. Solutions emphasize environmental changes and malleable factors associated with instruction. Solutions are discussed and a solution that the team deems feasible in the local context is selected implementation. Once identified, a plan is then articulated for how the solution will be implemented in practice for those affected. Specifically, who will be responsible for implementing the proposed changes/intervention, when this will occur, with what frequency it will be implemented, and when it will be delivered during the school day (matched to the when of the problem statement for problems involving social behavior). Following specification of the solution implementation plan, the team decides how implementation will be monitored for fidelity and by whom.

For problems which have been identified, a goal set, a solution selected and implemented, and fidelity monitored, the team will review student progress and fidelity of implementation data at subsequent meetings. This portion of the meeting coincides with the remaining stages of the TIPS problem-solving process. The implementation of the solution will be monitored using fidelity data collected according to the previous problem-solving session plan, and impact of this implementation on relevant student performance will be evaluated. Once this has occurred, a summative evaluation decision will be made regarding the effectiveness of a particular intervention for a particular student or group of students. During the evaluation of intervention impact on student performance (after confirming implementation was carried out with fidelity), the team may determine that the intervention had no effect, it had a detrimental effect, performance improved but not to criterion, performance improved to criterion (goal is met), or that the data are unclear. Based upon this evaluation the team will then make a summative evaluation decision. If improvement occurred but not to criterion, the team will either identify a malleable factor to adjust or decide to defer further action and see if the impact increases during the next data collection cycle. If the goal has been met, the intervention will likely be reduced in intensity, or potentially discontinued altogether. If performance has not improved, the intensity will be increased or another malleable factor will be altered, potentially including trial of a completely different intervention.

Typical training moves systematically across each component and stage (e.g., meeting foundations, identifying a problem with precision, identifying a goal) of the process and the design and structure of the TIPS model create opportunities for active, collaborative, and effective professional development that can be delivered in content-specific modules of effective practices. The organization and flow also create opportunities for frequent feedback, reflection, and support available in online learning.

Online learning

Online learning is widely used technology (Martin, Ahlgrim-Delzell, & Budhrani, 2017; Opfer & Pedder, 2011; Shaha & Ellsworth, 2013; Shirrell, Hopkins, & Spillane, 2019; Waitoller & Artiles, 2013; Yoon et al., 2007). While many schools rely on in-person experiences to support professional

development of administrators, teachers, and other staff, many also use online learning to build and maintain skills (Blitz, 2013; Brennan et al., 2019; Cook & Steinert, 2013; Dash et al., 2012; Glover, Reddy, Kurz, & Elliott, 2018; Kleiman et al., 2000; Mohr & Shelton, 2017; Rice, 2017). Online PD can provide a broader level of content and increase accessibility, especially for schools in rural areas and for specific program content (Smith & Sivo, 2012). In the traditional model of in-person professional development, many issues can arise with providing ongoing training for teachers. Schools often lack adequate time and resources to provide training as most PDs are delivered after school or in the summer before, both of which are also needed for planning and addressing issues during the school year (Wei, Darling-Hammond, & Adamson, 2010; Yoon et al., 2007). Many teachers express frustration because of time conflicts, a lack of relevancy, and little choice in what professional development they receive (Dede, Breit, Ketelhut, McCloskey, & Whitehouse, 2005; Dede, Jass Ketelhut, Whitehouse, Breit, & McCloskey, 2009). Online learning provides one avenue to mitigate some of these challenges by having more flexibility around where and when teachers can engage as well as by increasing the accessibility of content to more schools.

In addition to these general challenges, schools often face difficulty with tailoring professional development to meet the diverse and changing needs of their staff (Brennan et al., 2019; Desimone, Porter, Garet, Yoon, & Birman, 2002; Garet et al., 2001; Glover et al., 2018; Koellner & Jacobs, 2015; Peterson-Ahmad, Hovey, & Peak, 2018; Porter, Garet, Desimone, Yoon, & Birman, 2000). Schools likely have staff teams with a variety of experiences and responsibilities that could necessitate different professional development content according to teachers' experiences or roles in the school. For example, a seasoned reading intervention teacher will have different professional development needs from a first-year educational assistant working in a behavior focused classroom. In addition, school teams, such as the positive behavior intervention and support (PBIS) team or any of the data-based decision making teams in a multi-tiered support system (MTSS), will have members from both general and special education and will have team members who change year to year. This fluctuation necessitates both differentiated and targeted training for the various team members according to their role, experience, and familiarity with the content (Darling-Hammond et al., 2017; Simonsen et al., 2019; Sumsion et al., 2015). Online learning provides schools with the option to tailor professional development to fit the diverse needs of staff members and to respond to adjustments in team make-ups, which cause teachers to need to quickly acquire specific content knowledge to fully participate in their teams (Cook & Steinert, 2013; Mohr & Shelton, 2017; Rice, 2017; Shaha & Ellsworth, 2013).

Online learning has shown to be an effective tool for delivering teacher professional development and increasing teacher knowledge (Dash et al., 2012; Glover et al., 2018). Specific features have been identified as influencing the effectiveness of online learning for teachers. In general, ensuring active learning by using various modes of engagement as well incorporating a social component have both been found to enhance PD effectiveness for teachers (Bayar, 2014; Shaha & Ellsworth, 2013; Williford et al., 2017). Additionally, teacher acceptability has also been shown to mediate the overall effectiveness of online learning and should be considered when developing and testing online learning tools (Dede et al., 2005, 2009). Teacher acceptability can be increased through incorporating a social element, such as supporting conceptual change, having online learning communities, or interacting around professional development material with colleagues (Bayar, 2014; Dash et al., 2012; Dede et al., 2005, 2009; Englund, Olofsson, & Price, 2017; Kleiman et al., 2000; Mohr & Shelton, 2017; Rice, 2017; Smith & Sivo, 2012). While online learning has shown to be an effective tool for increasing teacher knowledge, questions remain about how to best use the technology in building and supporting effective teaching practices and the extent to which stakeholder perceive key features of OLMs as more or less supportive of its efficient and effective use.

Purpose of the study

TIPS has been shown to be effective in improving school-based decision making. We were interested in developing a TIPS online learning module (OLM) to support the increasing need for and interest in TIPS PD. In this article, we describe the use stakeholder feedback during the initial stages of an iterative TIPS OLM development process. Specifically, we report on the process and outcomes of gathering feedback to improve the user experience and ensure the online tool is useful, efficient, and effective in meeting the needs of key stakeholders.

Method

Participants and setting

Nineteen school staff members from five schools participated in two focus groups during the spring semester of the school year. Each of these five schools were from a single medium-sized school district in the Pacific Northwest and had been implementing PBIS for the past four years. Students in this district are predominantly White (67%), and most are economically disadvantaged (~75%). Approximately 23% are Hispanic, 7% Multi-Racial, and 1-2% each of American Indian/Alaska Native, Black/African American, Hawaiian/Pacific Islander, and Asian. Approximately 11% of students in the district are English Learners, and approximately 17% have an individualized educational plan. On most current assessments, roughly 55% of elementary and middle school students performed below state grade level expectations in reading and 60-70% performed below state grade level expectations in mathematics.

Participants for the present study were recruited using a purposive sampling procedure (Berg & Lune, 2012) with the goal of collecting the perspectives of school staff members who serve on their respective schools' Tier 2 PBIS. To establish a range of perspectives and reflect typical (cf. Taie & Goldring, 2017) and local distributions of settings, professionals from four elementary and one middle school were included. Further, participants' roles within their schools were general or special education teacher ($n = 6$, 32%), school psychologist ($n = 6$, 32%), support personnel (e.g., Behavior Specialist, Educational Assistant, $n = 5$, 26%), or administrator ($n = 2$, 10%), and were representative of typical distributions of professionals on school-based teams. All participants were members of their respective schools' Tier 2 PBIS teams and had some experience using the TIPS model.

This phase of project took place in a conference room, approximately 20' x 30', on a university campus. A projector was used to display information to orient all participants. For individual activities laptops were available for those without a computer or for whom using their personal computer was not feasible. Participant seats were arranged in a large 'U' configuration in the middle of the room.

Procedure

The online training module on TIPS used in the present study focused on one step of the TIPS model: precision problem statements. The training module is anticipated to take approximately 60 minutes to complete, however due to time constraints participants were given 45 minutes to complete the module therefore several of the participants did not finish. In light of the exploratory nature of the study, this was not considered a significant limitation of the study. Precision problem statements are one of six steps in the TIPS problem-solving process and form the basis for the remaining process-oriented components. Precision problem statements require specification of six elements: (a) who the problem affects, (b) what the problem is (and to what degree), (c) when the problem is occurring, (d) where the problem is occurring, (e) how often the problem is occurring, and (f) why the problem is thought to occur. The module presented during the

present study contained these six elements as well as an additional element focused on goal setting related to this type of problem statement.

The TIPS OLM was created through the online learning management system Obaverse which was developed at the University of Oregon. Oba seamlessly combines and extends the leading open source technologies to provide a powerful, flexible, learner-centric hub for both communities of practice and online learning. To use the technology, users login on the homepage and are presented with a list of educational modules. They can then navigate independently through the different modules. For TIPS, each module covers a different component of the TIPS models. User can select relevant content and navigate between modules as desired.

Each segment of the module began with a video presentation of core content related to the component being presented. Embedded in each video were checks for understanding immediately after critical portions of the component had been discussed. Members of the research team circulated throughout the duration of the exploration phase of the focus group (when participants were exploring the OLMs) to answer questions and assist participants as necessary. Following these videos, interactive practice activities were presented to give participants an opportunity to apply the content just taught in a scaffolded context with performance feedback. Scaffolding was withdrawn as participants demonstrated increasing proficiency during these activities and were able to apply the skills associated with presented content independently.

Data collection

We conducted focus groups (Buchanan, Nese, & Clark, 2016; Cyr, 2016; Patton, 1999) where the principal investigator and co-principal investigator served as the facilitators and two trained graduate students served as data collectors. A semi-structured format was used to document opinions of many individuals across two different days, to assess levels of consensus across participants, and to provide an opportunity for new questions to be revealed. This approach provided participants with the opportunity to interact with one-another and engage in meaningful discussion of their experience with the content and platform. It also produced more detailed and authentic information than would have been likely through a strictly researcher-driven process (Morgan, 1996).

The research team developed information and open-ended guiding questions (see [Appendix A](#)) which were used by both the facilitators and the data collectors to organize group discussion and elicit feedback pertaining to the clarity of content delivery and ease of navigation through the online TIPS training modules. The following content was included: (a) a description of the study, (b) introductions and discussions of prior experiences with online learning and the TIPS model (e.g., “What have you liked/disliked about online learning in the past?”), (c) questions about the types of training and support activities that have been most useful in applying the TIPS model (“What lessons have you learned over the years?”), (d) questions about the types of training or supports that would be most useful for new team members learning the TIPS model (e.g., “What are some things you wish you would have been taught when first using data in data team meetings?”), (e) details about a proposed online training course on TIPS, and (f) questions about the fit of the proposed training course. The focus groups were structured such that participants were introduced to the general purpose of the meeting and received an overview of the content of the course prior to working through some of the modules, and then, reconvened as a group for course-specific discussion and feedback. Data collectors independently took notes on both positive and constructive feedback provided by participants and this information served as the unit of analysis for decision making related to how to improve the user experience and ensure that the planned tool is useful, efficient, and effective in meeting the needs of key stakeholders.

Design and data analysis

In the context of an exploratory case study (Yin, 2017), a qualitative approach involving sequential focus groups was used to gather feedback from key stakeholders for use in improving the experience and content of the OLM. This design is often used as a prelude to provide formative information for subsequent research and/or product development (Hancock & Algozzine, 2017). As previously noted, two trained data collectors independently recorded participant feedback during the focus groups, then met to promote reliability in their collective notes across two specific aspects of the OLM. First, feedback was summarized with respect to the content presented in the OLM, how easy it was to understand, and any prerequisite knowledge needed in order to improve understandability of the content. Second, feedback was summarized with respect to the online platform including specifics about the look, feel, and functionality of the module. The data collectors then coded feedback as either positive or constructive, and the full research team met to review all feedback and make decisions about edits and adaptations to make based on the suggestions from the focus group participants. Prior to the second focus group session, feedback was used to adjust content presentation, formatting, and structure of the modules as feasible. This process was then repeated during and following the second focus group session, with changes implemented before the next phase of development work and pilot testing.

Results

There were numerous points of consensus evident in the individual responses and field notes collected and analyzed across individuals and focus groups. Overall, feedback from the first group emphasized the online delivery platform and structural aspects of the presentation training content. The second group also generated feedback related to content and sequencing and confirmed that the issues raised during the first group had been satisfactorily addressed. Additional findings are detailed in the following sections.

Feedback on OLM content

Strengths

Members of both focus groups provided feedback related to the content of the online training (see Table 1). All participants worked through the modules and offered feedback. More than 90% of the participants provided unique and substantive feedback, with several perspectives repeated or endorsed by multiple participants. Feedback on the content of the online TIPS training was varied and included observations pertaining to specific aspects of individual items as well more general observations about the approach to content delivery and the broader scope of the

Table 1: Examples of Participants Feedback related to Content of Online Training.

Focus	Feedback
Strengths	<p>"The sequence of instruction was laid out well. Instruction then practice then feedback, that's good for new learners."</p> <p>"I liked the six question check on precision problem statements ... and the feedback on the question I missed with an opportunity to retry was helpful and motivating."</p>
Improvements	<p>"It's great that there are links to research articles because teachers can't always access those."</p> <p>"Having a pre-test would be very useful for helping identify needed supports and which modules to send staff ... feedback on completion would be helpful too."</p> <p>"Interaction with peers has been critical for professional learning ... online delivery currently lacks this ... more exercises and practice might help alleviate this."</p> <p>"Short clips for staff meetings would be great-examples: what is function of behavior? Why kids go to CICO? Little vignettes for all staff to get important content but not have to do the whole module."</p>

training. Focus group participants particularly appreciated the scope of content and the efficiency of its delivery and identified multiple strengths including usage of a clear and consistent sequence of instruction with both opportunities to practice and provision of meaningful feedback. They also commented that instructional sequences were appropriately focused and very engaging, with feedback that drove deeper engagement than might otherwise be expected. Beyond simply the variety and depth of interactive methods in the TIPS OLM, users specifically appreciated the match between specific content and relevant interactive approaches to content delivery and practice. Comments and responses also suggested that the overall scope and pacing were appropriate and participants believed that this would facilitate faster learning by covering content in appropriate depth without spending too much time on any one topic.

Areas of improvement

Focus group participants also provided feedback on challenges and potential areas for improvement in the content delivered. Feedback pertained to a full range of content levels from specific items through modules and including the scope of the training overall. The feedback for improving the overall training in terms of content pertained to participants’ desire to have the ability to target the training for specific audiences, either through selecting which materials were delivered to whom, or through the inclusion of short-form videos that would be of interest to a broader school staff audience. Users believed that differentiated content options would maximize training utility within schools. The remaining feedback pertaining to content of the training was related to specific items or shorter segments of content. Participants identified several instances where content was delivered with less clarity, either due to phrasing during presentation or the mode of feedback following interactive practice. Specifically, users identified a need for more clarity in the presentation of content related to the TIPS process across tiers. They also expressed some confusion around how content described at a given tier applied to the TIPS process at other tiers and expressed a desire for clearer transitions between content related to different tiers. The section on precision problem statements was seen as an area where content was difficult to generalize across tiers. Participants also reported some areas where the content was overly dense, and thus difficult to understand, especially for new team members. It is worth noting again that participants were representatives from school teams with different histories of implementation with both PBIS and TIPS.

Feedback on OLM platform

Strengths

Throughout our focus groups, participants provided feedback around their experience using the TIPS online platform (see Table 2). Feedback ranged from specific technical challenges with the online interface to broader ideas for how the online training could be tailored to meet specific

Table 2: Examples of Participants Feedback related to Online Platform.

Focus	Feedback
Strengths	“It’s nice that document links are ready to access and download right away.” “Activities were good! I liked the variation of types of responses.” “Lots of features that are great in online applications. It’s nice that you can speed up presenter’s speech, jump to different points in the module and have them labeled.” “I found it helpful to have the pop-ups with definitions for key terminology.”
Improvements	“The navigation was fairly straightforward, but occasionally “clunky” with buttons at the bottom that didn’t jump out.” “The precision statements listed the time, but not in a recognized format.” “The interface for tasks was at times unclear; it would say “Great job! You did it!” after no meaningful response.” “The full screen function did not work properly. It cuts off the lower half of the video.”

school site and team needs. Participants shared how the online training would be useful for both individual new team members and an entire team learning together. Regarding technical aspects, participants enjoyed features that enabled them to speed up instructional videos and to review previous sections of the module. In addition, they felt having multiple question formats, such as a drop-down list or written out answers, enabled them to engage with the material in a variety of ways. Throughout both focus groups, participants appreciated the accessibility of material through both the ability to review content-specific terms through pop-up definitions as well as the inclusion of research articles, which participants could download for later reference. Both of these features were highlighted as being particularly useful for new team members and as helpful in making content accessible that generally is not available for most teachers and school personnel.

Areas of improvement

Some of the challenges with using the online platform that arose during our focus groups included specific technical errors and some difficulty around more interactive and complex responses. It should be mentioned that different participants had various levels of competency with technology which may have mediated some of their experiences. For example, some participants appreciated being able to speed up instructional videos, while others didn't know how to use this function. Some technical errors were identified, and participants provided feedback around esthetic concerns to improve usability, such as having navigation buttons in a prominent color so user can more quickly access them. Participants reported some difficulty around providing more complex responses so that answers could be accurately identified by the online program. Although the platform was able to detect multiple components of written out responses, there were still some unclear aspects with this type of response that caused frustration for participants. A final area of feedback that arose from the focus groups was having more ways to track progress. Participants suggested enabling a feature to either track time spent taking the module or having a certificate of completion at the end. They believed this would both increase a feeling of accomplishment amongst users and be a useful tool for staff to report their own professional learning back to their school administrators. Participants also proposed the use of a chat feature to connect either staff members working on the module concurrently or for staff to connect with live coaches when questions arise throughout the module.

Discussion

In this article, we report the process and outcomes of gathering feedback to adapt traditional in-person training to a series of OLMs differentiated for the participants to maximize utility, efficiency, and effectiveness in meeting the needs of key stakeholders. Focus groups were conducted with teachers, administrators, and specialist to gather feedback on specific content as well as how the OLM could be tailored to meet specific school site and team needs. The current project is an extension of existing research which demonstrated that in-person traditional training resulted in improved data-based decision-making for teams. Online training has the potential to provide working professionals with flexibility to fit in with busy lives and restricted budgets (Bahr et al., 2019; Brennan et al., 2019; Dash et al., 2012; Davis, 2009; Glover et al., 2018; Stanford-Bowers, 2008) we are engaged in the process of shifting the effective in-person training to an online platform. Creating OLMs and other professional development materials should be an iterative process of cycles, revisions, and progressive refinements (Cobb, Confrey, diSessa, Lehrer, & Schauble, 2003; Collins, Joseph, & Bielaczyc, 2004; Glover et al., 2018; Seago, Jacobs, & Driscoll, 2010). In this study, we followed this iterative process of development of the TIPS OLM by engaging with educator stakeholders.

The results from the focus group sessions indicate that members of Tier 2 behavior support teams found the online content and method acceptable, perceived it as having a high degree of utility, and were able to identify meaningful areas for improvement. Comments from both groups were generally

positive and users expressed excitement regarding the potential of online training and its manifestation as presented (see [Tables 1](#) and [2](#)). Further, users from the first focus group provided feedback regarding specific items or technical issues which our team was able to incorporate prior to the second focus group. Feedback related to these addressed issues was positive during the second focus group, and sometimes identified as a strength of the training. Users identified an essential tension between the convenience and power of electronically delivered instruction in terms of its potential for individualization and flexibility, and the benefits of face-to-face instruction with rich interpersonal interactions which are integral to well-run traditional professional development activities.

Users also indicated that they believed the strengths of electronically mediated training were greater than the potential drawbacks of losing some of the interaction they found useful in face-to-face settings. Specific supportive feedback included requests for a chat feature and expressions of enthusiasm related to the existing interactive practice activities. There was wide variability in the technical proficiency of users engaged in the focus groups for the present study, and this appears to have been related to the scope and content of feedback received regarding the technical aspects of the online platform. All participants were able to work through the training segments with a reasonable level of independence and all expressed excitement for the availability of online TIPS training for their school teams.

Our work was well connected to effective professional development practices (cf. Darling-Hammond et al., [2017a](#), [2017b](#), [2017c](#)). We focused on a singular content-based practice (i.e., problem solving) and used engaging materials to provide contextualized learning with coaching, progress monitoring, and feedback. Findings from focus group participants supported the initial development of our OLM and provided useful directions for finalizing, expanding, and implementing the work.

Limitations

The focus groups were conducted with school personnel from one school district in the Pacific Northwest with limited racial and socioeconomic diversity using a small sample recruited through purposive sampling. Studies conducted with key stakeholders across multiple school districts with a more representative sample will provide additional information about professional development needs across different groups within schools (e.g., first year teachers, support staff) as well as the best modalities for delivering such trainings. This was not an outcome study; in fact, we sought to gain insight and guidance from educators on the development of an online learning platform that would make online professional development experiences more beneficial, interactive, and salient. As such, the feedback provided was not collected to document summative performances, but for the formative purpose of improving training opportunities and tools for key stakeholders involved in educating and supporting students.

Implications

It is necessary for researchers to share iterative development procedures so that we can continue to increase the rigor of the development process as it pertains to online learning for teachers. A strength of our study is that the TIPS face-to-face professional development has been shown to be effective in previous empirical studies (Horner et al., [2018](#); Newton et al., [2012](#)). This connection between previously conducted experimental studies and qualitative development projects could be used as a model to develop and disseminate high quality online professional development opportunities. This study demonstrated that teachers want their online learning to be differentiated based on role (i.e., special education teacher, principal, general education teacher) so that the time they spend learning is meaningful and as efficient as possible. Recent research has demonstrated that targeted and online learning opportunities have the potential to make evidence-based practices

accessible to a wider range of teachers who have increasingly demanding personal and professional schedules (Brennan et al., 2019; Glover et al., 2018; Simonsen et al., 2019).

Future research should explore and empirically evaluate selective critical features of professional development to identify the most effective ways of translating training materials into practices used within the classroom. Additionally, evaluations documenting school-based changes and outcomes resulting from this type of professional development are needed and clearly warranted.

Conclusion

Educational research, and more importantly, educational intervention and tool development benefits from the input and guidance of the individuals charged with using the tools in their schools. As such, collaboration between intervention developers and school personnel is necessary for developing comprehensive supports that fit the school context, are feasible to use, and render the outcomes that are needed in schools. Although studies such as the one presented do not provide empirical evidence for key features of effective professional development, they are a necessary step in the development of supports that will ideally be used by the very stakeholders that helped develop them.

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References

- Bahr, M. W., Quach, H. L., Mirth, C. A., Birket, K. A., Gillum, M. E., & Underwood, H. M. (2019). A tool to support the professional learning of problem-solving teams: A pilot study on the problem-solving team effectiveness scale. *Professional Development in Education*, 1–14. doi:10.1080/19415257.2019.1634626

- Balu, R., Zhu, P., Doolittle, F., Schiller, E., Jenkins, J., & Gersten, R. (2015). *Evaluation of response to intervention practices for elementary school reading*. Retrieved from <http://ies.ed.gov/ncee/pubs/20164000/pdf/20164000.pdf>
- Bayar, A. (2014). The components of effective professional development activities in terms of teachers' perspective. *International Online Journal of Educational Sciences*, 6, 319–327. doi:10.15345/iojes.2014.02.006
- Berg, B. L., & Lune, H. (2012). *Qualitative research methods for the social sciences* (8th ed., internat. ed. ed.). Pearson Education.
- Birman, B. F., Desimone, L., Porter, A. C., & Garet, M. S. (2000). Designing professional development that works. *Educational Leadership*, 57, 28–33.
- Blitz, C. L. (2013). *Can online learning communities achieve the goals of traditional professional learning communities? What the literature says. (REL 2013–2003)*. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Mid-Atlantic. Retrieved from <http://ies.ed.gov/ncee/edlabs>.
- Bransford, J. D., & Stein, B. S. (1984). *The IDEAL problem solver: A guide for improving thinking, learning, and creativity*. W. H. Freeman and Company.
- Bransford, J. D., & Stein, B. S. (1993). *The IDEAL problem solver: A guide for improving thinking, learning, and creativity* (2nd ed.) Freeman and Company.
- ennan, E. M., Sellmaier, C., Jivanjee, P., & Grover, L. (2019). Is online training an effective workforce development strategy for transition service providers? Results of a comparative study. *Journal of Emotional and Behavioral Disorders*, 27(4), 235–245. doi:10.1177/1063426618819438.
- Buchanan, R., Nese, R. N. T., & Clark, M. (2016). Defining the needs of students with emotional and behavioral disorders: Giving key stakeholders a voice. *Behavioral Disorders*, 41(3), 135–147. doi:10.17988/BD-15-73.1
- Burns, M. K., Peters, R., & Noell, G. H. (2008). Using performance feedback to enhance implementation fidelity of the problem-solving team process. *Journal of School Psychology*, 46(5), 537–550. doi:10.1016/j.jsp.2008.04.001
- Burns, M. K., & Symington, T. (2002). A meta-analysis of pre-referral intervention teams: Student and systemic outcomes. *Journal of School Psychology*, 40(5), 437–447. doi:10.1016/S0022-4405(02)00106-1
- Burns, M. K., Vanderwood, M. L., & Ruby, S. (2005). Evaluating the readiness of pre-referral intervention teams for use in a problem solving model. *School Psychology Quarterly*, 20(1), 89–105. doi:10.1521/scpq.20.1.89.64192
- Cobb, P., Confrey, J., diSessa, A., Lehrer, R., & Schauble, L. (2003). Design experiments in educational research. *Educational Researcher*, 32(1), 9–13. doi:10.3102/0013189X032001009
- Collins, A., Joseph, D., & Bielaczyc, K. (2004). Design research: Theoretical and methodological issues. *The Journal of the Learning Sciences*, 13(1), 15–42. doi:10.1207/s15327809jls1301_2
- Cook, D. A., & Steinert, Y. (2013). Online learning for faculty development: A review of the literature. *Medical Teacher*, 35(11), 930–937. doi:10.3109/0142159X2013.827328
- Crone, D. A., Carlson, S. E., Haack, M. K., Kennedy, P. C., Baker, S. K., & Fien, H. (2016). Data-based decision-making teams in middle school: Observations and implications from the middle school intervention project. *Assessment for Effective Intervention*, 41(2), 79–93. doi:10.1177/1534508415610322
- Cyr, J. (2016). The pitfalls and promise of focus groups as a data collection method. *Sociological Methods & Research*, 45, 231–259. doi:10.1177/0049124115570065
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017a). *Effective teacher professional development*. Learning Policy Institute. Retrieved from <https://learningpolicyinstitute.org/product/teacher-prof-dev>.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017b). *Effective teacher professional development. Fact Sheet*. Learning Policy Institute. https://learningpolicyinstitute.org/sites/default/files/product-files/Effective_Teacher_Professional_Development_FACTSHEET.pdf.
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017c). *Effective teacher professional development. Research Brief*. Learning Policy Institute. https://learningpolicyinstitute.org/sites/default/files/product-files/Effective_Teacher_Professional_Development_BRIEF.pdf.
- Dash, S., Magidin De Kramer, R., O'Dwyer, L., Masters, J., & Russell, M. (2012). Impact of online professional development on teacher quality and student achievement in fifth grade mathematics. *Journal of Research on Technology in Education*, 45(1), 1–26. doi:10.1080/15391523.2012.10782595
- Davis, M. R. (2009). *Creating Value with Online Teacher Learning*. *Education Week*, 2, 35–36. Retrieved from <http://www.teachersourcebook.org/tsb/articles/2009/03/16/02onlinepd.h02.html>.
- Dede, C., Breit, L., Ketelhut, D. J., McCloskey, E., & Whitehouse, P. (2005). *An overview of current findings from empirical research on online teacher professional development*. Cambridge, MA: Harvard Graduate School of Education.
- Dede, C., Jass Ketelhut, D., Whitehouse, P., Breit, L., & McCloskey, E. M. (2009). A research agenda for online teacher professional development. *Journal of Teacher Education*, 60(1), 8–19.
- Deno, S. L. (2005). Problem-solving assessment. In R. Brown-Chidsey (Ed.), *Assessment for intervention: A problem-solving approach* (pp. 10–40). New York: Guilford. doi:10.1177/0022487108327554
- Desimone, L. M., & Garet, M. S. (2015). Best practices in teachers' professional development in the United States. *Psychology, Society, & Education*, 7(3), 252–263. doi:10.25115/psyse.v7i3.515

- Desimone, L. M., Porter, A. C., Garet, M. S., Yoon, K. S., & Birman, B. F. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24, 81–112. doi:10.3102/01623737024002081
- Englund, C., Olofsson, A. D., & Price, L. (2017). Teaching with technology in higher education: Understanding conceptual change and development in practice. *Higher Education Research & Development*, 36(1), 73–87. doi:10.1080/07294360.2016.1171300
- Fixsen, D., Blase, K., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children*, 79(3), 213–230. doi:10.1177/001440291307900206
- Fuchs, D., & Deshler, D. D. (2007). What we need to know about responsiveness to intervention (and shouldn't be afraid to ask). *Learning Disabilities Research & Practice*, 22, 129–136. doi:10.1111/j.1540-5826.2007.00237.x
- Fuchs, D., & Fuchs, L. S. (2017). Critique of the national evaluation of response to intervention: A case for simpler frameworks. *Exceptional Children*, 83(3), 255–268. doi:10.1177/0014402917693580
- Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915–945. doi:10.3102/00028312038004915
- Gast, I., Schildkamp, K., & van der Veen, J. T. (2017). Team-based professional development interventions in higher education: A systematic review. *Review of Educational Research*, 87(4), 736–767. doi:10.3102/0034654317704306
- Glover, T. A., Reddy, L. A., Kurz, A., & Elliott, S. N. (2018). Use of an online platform to facilitate and investigate data-driven instructional coaching. *Assessment for Effective Intervention*, 44(2), 95–103. doi:10.1177/1534508418811593
- Hancock, D. R., & Algozzine, B. (2017). *Doing case study research*. New York, NY: Teachers College Press.
- Horner, R. H., Newton, J. S., Todd, A. W., Algozzine, B., Algozzine, K., Cusumano, D., & Preston, A. (2018). A randomized waitlist controlled analysis of team-initiated problem solving professional development and use. *Behavioral Disorders*, 43(4), 444–456. doi:10.1177/0198742917745638
- Horner, R. H., Sugai, G., & Anderson, C. M. (2010). Examining the evidence base for school-wide positive behavior support. *Focus on Exceptional Children*, 42(8), 1–14. doi:10.17161/foec.v42i8.6906
- Horner, R. H., Sugai, G., & Lewis, T. (2015, April). Is school-wide positive behavior support an evidence-based practice? Retrieved from <https://www.pbis.org/resource/is-school-wide-positive-behavior-support-an-evidence-based-practice>.
- Kleiman, G., Dash, T., Ethier, D., Johnson, K., Metrick, S., & Treacy, B., & Education Development Center, I. C. M. (2000). *Designing and implementing online professional development workshops*. Waltham, MA: Education Development Center, Inc.
- Koellner, K., & Jacobs, J. (2015). Distinguishing models of professional development: The case of an adaptive model's impact on teachers' knowledge, instruction, and student achievement. *Journal of Teacher Education*, 66(1), 51–67. doi:10.1177/0022487114549599
- Kraft, M. A., Blazar, D., & Hogan, D. (2018). The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence. *Review of Educational Research*, 88(4), 547–588. doi:10.3102/0034654318759268
- Leithwood, K. (2010). Characteristics of school districts that are exceptionally effective in closing the achievement gap. *Leadership and Policy in Schools*, 9(3), 245–291. doi:10.1080/15700761003731500
- Martin, F., Ahlgrim-Delzell, L., & Budhrani, K. (2017). Systematic review of two decades (1995 to 2014) of research on synchronous online learning. *American Journal of Distance Education*, 31(1), 3–19. doi:10.1080/08923647.2017.1264807
- McCart, A., Sailor, W., Bezdek, J., & Satter, A. (2014). A framework for inclusive educational delivery systems. *Inclusion*, 2(4), 252–264. doi:10.1352/2326-6988-2.4.252
- Mohr, S. C., & Shelton, K. (2017). Best practices framework for online faculty professional development: A delphi study. *Online Learning*, 21, 123–140. doi:10.24059/olj.v21i4.1273
- Morgan, D. L. (1996). *Focus groups as qualitative research*. *Qualitative Research Methods Series* (2nd ed.). London: Sage Publications.
- National Center on Intensive Intervention (2019). Intensive intervention. National Center on Intensive Intervention. Retrieved from <https://intensiveintervention.org/intensive-intervention>.
- National Center on Response to Intervention (2010). *Essential components of RTI – A closer look at Response to Intervention*. National Center on Response to Intervention. Retrieved from https://rti4success.org/sites/default/files/rtiessentialcomponents_042710.pdf.
- Newton, J. S., Algozzine, B., Algozzine, K., Horner, R. H., & Todd, A. W. (2011). Building local capacity for training and coaching data-based problem solving with positive behavior intervention and support teams. *Journal of Applied School Psychology*, 27(3), 228–245. doi:10.1080/15377903.2011.590104

- Newton, J. S., Horner, R. H., Algozzine, B., Todd, A. W., & Algozzine, K. (2012). A randomized wait-list controlled analysis of the implementation integrity of team-initiated problem solving processes. *Journal of School Psychology, 50*(4), 421–441. doi:10.1016/j.jsp.2012.04.002
- Newton, J., Todd, A., Algozzine, K., Horner, R., & Algozzine, B. (2009). *The team initiated problem solving (TIPS) training manual*. University of Oregon, Educational and Community Supports.
- Opfer, V. D., & Pedder, D. (2011). Conceptualizing teacher professional learning. *Review of Educational Research, 81*(3), 376–407. doi:10.3102/0034654311413609
- OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports (2019). *Getting started*. Retrieved from <https://www.pbis.org/pbis/getting-started>.
- OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports (2015, October). Positive Behavioral Interventions and Supports (PBIS) Implementation Blueprint: Part 1 – Foundations and Supporting Information. University of Oregon. Retrieved from www.pbis.org.
- Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research, 34*(5 Pt 2), 1189–1208.
- Peterson-Ahmad, M. B., Hovey, K. A., & Peak, P. K. (2018). Pre-service teacher perceptions and knowledge regarding professional development: Implications for teacher preparation programs. *Journal of Special Education Apprenticeship, 7*, 1–16.
- Porter, A. C., Garet, M. S., Desimone, L., Yoon, K. S., & Birman, B. F. (2000). *Does professional development change teaching practice? Results from a three-year study*. (U.S. Department of Education Report No. 2000-04). Jessup, MD: U.S. Department of Education.
- Rice, M. F. (2017). Few and far between: Describing K-12 online teachers' online professional development opportunities for students with disabilities. *Online Learning, 21*(4), 103–121. doi:10.24059/olj.v21i4.1274
- Seago, N., Jacobs, J., & Driscoll, M. (2010). Transforming middle school geometry: Designing professional development materials that support the teaching and learning of similarity. *Middle Grades Research Journal, 5*, 199–211.
- Shaha, S., & Ellsworth, H. (2013). Predictors of success for professional development: Linking student achievement to school and educator successes through on-demand, online. *Journal of Instructional Psychology, 40*, 19–26.
- Shirrell, M., Hopkins, M., & Spillane, J. P. (2019). Educational infrastructure, professional learning, and changes in teachers' instructional practices and beliefs. *Professional Development in Education, 45*(4), 599–613. doi:10.1080/19415257.2018.1452784
- Simonsen, B., Freeman, J., Myers, D., Dooley, K., Maddock, E., Kern, L., & Byun, S. (2019). The effects of targeted professional development on teachers' use of empirically supported classroom management practices. *Journal of Positive Behavior Interventions, 22*(1), 3–14. doi:10.1177/1098300719859615
- Smith, J. A., & Sivo, S. A. (2012). Predicting continued use of online teacher professional development and the influence of social presence and sociability. *British Journal of Educational Technology, 43*(6), 871–882. doi:10.1111/j.1467-8535.2011.01223.x
- Stanford-Bowers, D. E. (2008). Persistence in online classes: A study of perceptions among community college stakeholders. *Journal of Online Learning and Teaching, 4*, 37–50.
- Sumsion, J., Lunn Brownlee, J., Ryan, S., Walsh, K., Farrell, A., Irvine, S., ... Berthelsen, D. (2015). Evaluative decision-making for high-quality professional development: Cultivating an evaluative stance. *Professional Development in Education, 41*(2), 419–432. doi:10.1080/19415257.2014.989257
- Taie, S., & Goldring, R. (2017). *Characteristics of Public Elementary and Secondary Schools in the United States: Results From the 2015–16 National Teacher and Principal Survey First Look (NCES 2017-071)*. National Center for Education Statistics. Retrieved from <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2017071>.
- Tilly, W. D. (2008). The evolution of school psychology to a science-based practice: Problem solving and the three-tiered model. In J. Grimes & A. Thomas (Eds.), *Best practices in school psychology V* (pp. 17–36). Bethesda, MD: National Association of School Psychologists.
- Todd, A. W., Horner, R. H., Newton, J. S., Algozzine, R. F., Algozzine, K. M., & Frank, J. L. (2011). Effects of team-initiated problem solving on decision making by schoolwide behavior support teams. *Journal of Applied School Psychology, 27*(1), 42–59. doi:10.80/15377903.2011.540510
- Waitoller, F. R., & Artiles, A. J. (2013). A decade of professional development research for inclusive education: A critical review and notes for a research program. *Review of Educational Research, 83*(3), 319–356. doi:10.3102/0034654313483905
- Wei, R. C., Darling-Hammond, L., & Adamson, F. (2010). *Professional development in the United States: Trends and challenges*. Dallas, TX: National Staff Development Council.
- Williford, A. P., Carter, L. M., Maier, M. F., Hamre, B. K., Cash, A., Pianta, R. C., & Downer, J. T. (2017). Teacher engagement in core components of an effective, early childhood professional development course: Links to changes in teacher-child interactions. *Journal of Early Childhood Teacher Education, 38*(1), 102–118. doi:10.1080/10901027.2016.1269028
- Yin, R. L. (2017). *Case study research and applications: Design and methods* (6th ed.). Los Angeles, CA: Sage Publications.

Yoon, K. S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues & Answers Report, REL 2007–No. 033). Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. Retrieved from <http://ies.ed.gov/ncee/edlabs>

Appendix A. TIPS EdTech Focus Group Guiding Questions

Before the Module

We are developing online learning modules (OLMs) for TIPS training. Before looking at the first module, we want to know ...

1. What are some things you like and/or dislike about online learning? (you may find that some of the things you dislike are in the module we show so it will be good to reflect on that)
2. Give information about what they will be seeing: content, prerequisite

After the Module

We need your help with the form (how does it look), function (how does it work), structure (how well was content presented), and other areas of the OLM ...

Form (How did it look?)

1. What did you like about the OLM?
 - a. Organization
 - b. Flow
 - c. Navigation
 - d. Other
2. What was confusing and/or needs improvement in the OLM?
Function (How did it work?)
3. What parts of the OLM (e.g., activities, feedback) should be increased or decreased?
4. What was confusing and/or needs improvement in the OLM?
Structure (How well was content presented?)
5. What content (e.g., focus areas, examples, practice items, assessments) needs more or less coverage?
6. What content (e.g., focus areas, examples, practice items, assessments) was confusing and/or needs improvement in the OLM?
Conclusion (What else do we need to know?)
7. How did going through the OLM compare to your previous training experience with TIPS?
 - a. Was the organization and flow similar to live professional development?
 - b. Was the content presentation more or less engaging than live professional development?
 - c. Were the activities more or less engaging than live professional development?
8. What else should we know moving forward?