TRANSFORM YOUR ONLINE PROFESSIONAL DEVELOPMENT TO WORK FOR YOU

RESEARCH AND EVALUATION INSTITUTE
HARRIS COUNTY DEPARTMENT OF EDUCATION
AUGUST 2020

Contents

Transform Your Online Professional Development to Work for You

Introduction

      Due to COVID-19, online learning for students is becoming the mainstream in education. On July 7, 2020, the Texas Education Agency (TEA) issued its comprehensive guideline for a safe return to on-campus instruction for the 2020-2021 school year. The TEA stated: "Despite what will be a challenging budget year…legislative leaders are committed to fully funding in-class and remote instruction for every child…parents will have the option to choose remote learning for their children, initially, or at any point as the year progresses (TEA, 2020)." In addition to strains on the state budget, there is another key issue impeding online learning. Many teachers do not feel fully prepared for online learning since the traditional professional development (PD) training, unless otherwise noted, prepared teachers for face to face instruction which was the expected mode of delivery (Koenig, 2020). Furthermore, teacher preparation programs and PD courses are facing the same dilemma: how to prepare teachers in an online context (Koenig, 2020)?

      Although PD has been delivered in an online format for many years, literature indicates that teachers still prefer face-to-face professional development instruction. Building personal connections is identified as an important value shared by teachers during professional development. Online learning was once considered to be lacking in personal connections and collaborative features (Amador, Callard, Choppin, Carson, & Gillespie, 2019). Connecting online PD with other ongoing face-to-face activities and integrating online workshops with face-to-face meetings were identified as important elements to create an effective online PD program (Treacy, Kleiman, & Peterson, 2002). The pandemic, however, has caused the sudden shutdown of face-to-face activities, forcing both professional development instructors and teachers to address a new norm. Now, instructors must create a 100 percent virtual learning environment.

      Other successful elements of online or non-online PD summarized by the literature may also not be applicable under the current circumstances. The purpose of this literature review is to provide some best practices found in literature for PD instructors who are doing their transition from a face-to-face to a 100 percent virtual instructional format. This literature review contains three sections: Section one lists the most common effective PD activities identified in the literature along with each activity's challenges. Section two focuses on the most recent innovations in online PD across course design, pedagogical theory, and activities. Examples of each innovation are presented. Section three discusses district and school administrators' impact on PD. Administrators play a very important role in developing teachers' interest in participating in online PD and in maintaining effective implementation of PD in schools. The authors of this paper suggest instructors review the advantages and disadvantages of identified effective PD activities and creatively transform their own activities into a 100 percent virtual learning environment.

Activities and Challenges of Effective Professional Development

Darling-Hammond, Hyler, and Gardner (2017) describe effective professional development (PD) as structured professional learning with a goal to change teachers' knowledge and practices that will in turn improve student learning outcomes. In order to achieve this goal, literature suggests that effective PD programs should include more than one of the following characteristics (Darling-Hammond et.al, 2017; State, Simonsen, Hirn, & Willis, 2019):

1- Content focused
2- Incorporates active learning
3- Supports collaboration
4- Uses models of effective practice
5- Provides coaching and expert support
6- Offers feedback and reflection
7- Is of sustained duration

Some common PD activities found in literature include conferences and workshops, in-service trainings, online modules, professional learning communities (PLCs), and coaching. Literature suggests that an effective PD program should include more than one of these activities over time so that teachers can successfully translate the skills learned into practice (State et al., 2019). These activities should also incorporate more than one of the key characteristics listed in the previous paragraph. This section will discuss the common activities of PD and how they integrate some of the key characteristics of effective PD. It will also discuss some of the challenges faced with implementing some of these activities.

Conferences and Workshops

Conferences and workshops are events that focus on knowledge distribution and are used to share best theories and practices. These are one-shot events where a small group of educators are taught a new method and then asked to pass on what they learned to others in their professional community (State et al., 2019). These conferences can be content focused, align with learning activities, provide opportunities for active learning, and support collaboration, all of which are key characteristics of effective PD. However, most often these conferences do not provide the ongoing support that teachers need to translate what they learned from these conferences into practice (Darling-Hammond et al., 2009). Most attendees of these one-time events will either not implement what they learned, or they will wait too long to try to implement the learned material, which leads to poor-quality implementation (State et al., 2019).

In-service Trainings

In-service trainings are like conferences and workshops, but they bring PD directly to educators. These training sessions can last for 20 to 60 minutes or be a full or half-day training. Traditional in-service trainings are taught in the typical lecture style. However, more recent in-service trainings include more characteristics of effective PD. These characteristics include being content-focused, job-embedded, collaborative, and highly engaging (State el al., 2019). A challenge with in-service trainings is that these trainings, like conferences and workshops, Literature suggests that these trainings should be paired with follow-up and other methods of support (Marquez, Vincent, Marquez, Pennefather, Smolkowski, & Sprague, 2016). Another challenge with in-service trainings also found at conferences is the disconnect between the trainings offered and the educators' need (Tuncel & Cobanoglu, 2018).

Online Modules

Online modules, another form of PD delivery, can offer unlimited reach with various topics to educators all around. These modules can be used to increase knowledge and can provide the opportunity to develop learning communities among teachers across the country (Erickson, Noonan, & McCall, 2012). However, online modules alone are not enough. Jimenez, Mims, and Baker (2016) discovered that although teachers were able to obtain information from the online modules, the modules alone were not sufficient to help the teachers apply the techniques to their own students. It is suggested that these modules be supplemented with another form of PD activity such as on-going coaching or self-managed supports (State et al., 2019).

Professional Learning Communities

Professional Learning Communities (PLCs) or work groups are another form of PD. PLCs are voluntary gatherings of educators that can develop informally or formally around a project, interest, or shared goal and provide for a continuous inquiry process with the purpose of bettering student learning (DuFour & DuFour, 2015). These communities can consist of teachers, principals, administrators, and/ or district leaders (Peppers, 2015). PLCs have been shown to increase collaboration, change teacher practice, improve teacher knowledge and efficacy, and improve student achievement (State et al., 2019). Some common challenges with PLCs are often group tensions, reluctance to speak openly, a lack of vision, and a lack of ownership (State et al., 2019).

Coaching

Coaching is a type of support that is delivered over time, offering guidance, encouragement, and reminders of best practices. It also includes observing, collecting, and using data to monitor teachers' implementation, providing feedback based on data to overcome implementation challenges, and celebrating successes (Freeman, Sugai, Simonsen, & Everett, 2017). Coaching can be performed by experts, school leaders, mentors, peers, or even the teachers themselves and delivered in a variety of formats including large or small groups or individually (State et al., 2019). Coaching should be individualized, intensive, sustained, context-specific, and focused on specific skills (Kraft, Blazar, & Hogan, 2018) embodying many of the core characteristics of effective PD (State et al., 2019). Reinke, Stormont, Herman, and Newcomer (2014) conducted a study on coaching sessions. Results indicated that teachers who received more performance feedback had significantly higher levels of implementation that they sustained for a longer period, compared with teachers who received less performance feedback.

Although there are many PD delivery methods and activities to choose from, there is no one-size-fits-all, low-cost method to effectively conduct PD (State at el., 2019). Effective PD should incorporate various PD activities grounded in the core characteristics of PD: be intensive and ongoing, be content focused, align with other learning activities and school improvement goals, provide opportunities for active learning, support collaboration, be job-embedded, and include coaching and performance feedback. Overall, research indicates that ongoing and intensive PD activities can have a positive effect on teachers' knowledge and should include more than one of the PD activities listed above to be effective (State at el., 2019).

Innovations in Online Professional Development

Responding to the ongoing social and economic transformation caused by digitalization and globalization, PD turned to online learning contexts in the past years. This section will introduce some recent findings and innovations within the literature when conducting online PD activities. Even though online communication lacks the spontaneity of face-to-face communication, it takes advantage of both synchronous and asynchronous features which can be employed to build collaboration and personal connections.

Online Conferences and Workshops

Amador and her colleagues (2019) presented and discussed a three-year implemented model in an online PD context at the 2019 Annual Meeting of Psychology of Mathematics & Education of North American (PME-NA). The model embedded three online components: (a) online workshop, (b) teaching lab, and (3) online video coaching (Amador, Callard, Choppin, Carson, & Gillespie, 2019).

In the online courses of Amador's model (2019), participants received synchronous whole-class and small-group interactions by using Zoom and had the ability to access the workshop content and other materials after the workshop. First, participants received a task or a topic in the main room. Then the course instructor assigned participants to virtual breakout rooms where participants could share their ideas, discuss tasks/topics, and conduct activities. The instructor listened to and participated in these group discussions. When the groups were ready to present their solutions, the instructor closed the virtual breakout rooms and returned all participants to the main room to conduct a summary discussion. The course contents and materials were saved in a shared space so that the participants could continuously go back and reflect on the course content and solutions. Participants were also encouraged to share additional resources and comments on the solutions after the course (Amador, Callard, Choppin, Carson, & Gillespie, 2019).

Teaching Lab

In the teaching lab of Amador's model (2019), project personnel first made teaching videos in real classrooms. Participants watched the videos with a focus on productive teaching moves and students' thinking in relations to the training goals. The process is repeated throughout the project / courses. Similar to the online courses, the lab contents and materials were saved so that participants could continuously go back to reflect the contents and activities.
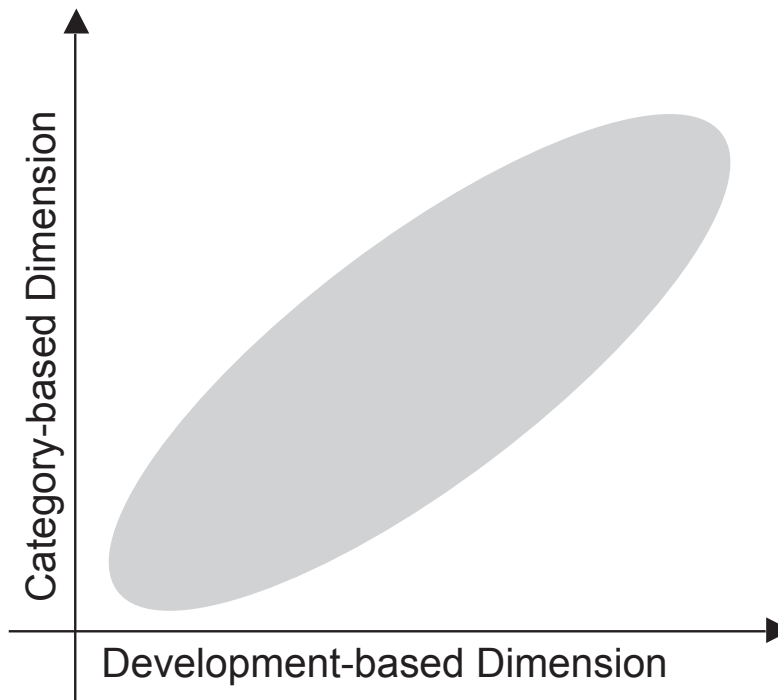
Online Video Coaching

Amador's model (2019) also designed an innovative online video coaching, which also contains synchronous and asynchronous features. Like most other online coaching, the online coaches and participants had regular video conference conversations using Zoom. Asynchronously, participants video-recorded themselves by using Swivl, and uploaded the records into a password-protected site where the coaches could immediately view and provide feedback. Swivl allowed coaches and participants to separately view and comment on the videos. Similar to the above two components, the videos can be viewed and commented on repeatedly so that the participants could go back and continue to reflect on the coaching contents and activities.

Online Module Design

The pedagogical theories and online courses design are always the focus of online PD. Currently, there are two widely used models in practice: (1) Salmon's five-stage-model, and (2) Ryan and Ryan's TARL model.

As its name references, Salmon's five-stage-model constructs online courses by five stages: 1) access and motivation, 2) online socialization, 3) information exchange, 4) knowledge construction, and 5) development (Salmon, 2003). This model serves as a framework to design courses by using a sequential structure.For example, the course instructor should provide opportunities to participants to build their social connections and motivations before they build up knowledge with each other (Salmon, 2003). Salmon's model focuses on the needs in an online environment.

Developed from Salmon's model, Ryan and Ryan (2013) theorized a model which has two dimensions— the category-based dimension and the development-based dimension—for teaching and assessing reflective learning (TARL) in an online context. Ryan and Ryan emphasize that participants' reflection should be throughout the whole course and program so that effective pedagogic choices can be made (Ryan & Ryan, 2013).

"The category-based dimension is concerned with levels of thinking or application of higher order ideas, while the development-based dimension relates to developments in students' thinking over time as they progress through a program with increasing exposure to disciplinary concepts and practices."
(Ryan & Ryan, 2013: 253)

In the Ryan and Ryan model, various learning theories can be used alongside the category-based dimension, in recognition of the different approaches of teaching and learning in different disciplines, for example the complexity of the course (Ryan & Ryan, 2013). Although the Ryan and Ryan model provided a framework to integrate participants' reflection as a part of the progress through a course, Erkmann, Petersen and Christensen (2019) claimed that the Ryan and Ryan model overlooked the importance of participants' collaboration with peers outside the online learning environment. Based on the Ryan and Ryan TARL model, Erkman, Petersen and Christensen theorized a new three-dimension model— the three spaces model, which includes participants' private space, course space, and professional work space, as a thinking tool for designing online PD course and assignments (Erkmann, Petersen, & Christensen, 2019).

(Erkmann, Petersen, & Christensen, 2019)

Similar to the Ryan and Ryan model, the three-space model has a vertical and horizontal axis. However, the three-space model incorporates the theory that the instructor should build a bridge to link participants' learning with their professional working lives by designing effective course assignments and sub-assignments. From this, the participants can align their years of experience and learning needs with their practice (Erkmann, Petersen, & Christensen , 2019). The above figure is an example provided by the authors to explain the model. The vertical axis was set as the complexity of the course and the horizontal axis was set as students' reflection of course progression over time. The course assignments and sub-assignments could be designed and plotted into three spaces according to their level of complexity and course progression (Erkmann, Petersen, & Christensen, 2019). For example, the assignments could be conducted individually by participants in the private space, followed by assignment of sharing and reflecting on findings in the course space, and then followed by assignment of testing new knowledge in participants' professional working space (Erkmann, Petersen, & Christensen, 2019). The model suggests that collaboration might take place in spaces throughout the course progression.

Online Community of Practice Approach

Dickinck-Holmfeld and Coto (2019) presented their research findings on a community approach at the First International Conference on Education in the Digital Ecosystem—a community of practice approach (CoP). This community approach was implemented by Coto in the National University of Costa Rica with the aim of "designing for productive teacher PD trainings which prepare the teachers as agents for digital transformation and promoters of expanding pedagogical practice" (Dirckinck-Holmfeld & Coto, 2019). Dickinck-Holmfeld and Coto claimed that the CoP is a promising approach in teachers' PD because of its three natures:

(1) a mutual engagement, (2) a joint enterprise, and (3) a shared repertoire. Participants can be engaged as social entities, sharing their practices and resources. The CoP framework was structured by the following components: chat board, discussion forum, group work, face-to-face meeting, pedagogical intervention (workshop), and community engagement (Dirckinck-Holmfeld & Coto, 2019). The research found that the CoP is a productive framework in general, but it also encounters some challenges. The major challenges and recommendations are summarized in the following Table 2.

Component	Research Findings	Challenges
Chat board	Participation in the chat board was high at the beginning of each intervention/workshop, but then fell almost to a zero	Messy communication: all kinds of topics were shared and overwhelmed participants
Discussion forum	Discussion forum was organized based on various expertise and different topics. All participants appreciated the new tool.	The entrance level too demanding; conflicts with participants' workload
Group work	Group work constructed shared understanding, negotiation, confrontation, and commitment	Lack of sharing culture and essential skills/techniques; individual time and motivation against productive outcome; producing boundaries of the project
Face-to-face meeting	Face-to-face meetings were conducted regularly and preferred by many participants	Lack of flexibility; heavy workload on planning and organizing meetings
Pedagogical intervention	Participants found the interventions which were done individually were very useful for their learning outcomes	Time and priority between PD and participants' workload
Community Engagement	Most participants engaged in the CoP, sharing stories and support each other	Irregular participants don't feel they were engaged well

(Dirckinck-Holmfeld & Coto, 2019)

The research found that the issues of time and workload remained a problem for some participants to regularly engage in the community. In addition, in order to feel comfortable to engage in the community, the participants needed to prepare appropriate digital skills before their participation. This requires detailed instructions from the facilitator and a culture where participants can help each other in a situated manner. Although they listed the challenges that the CoP encountered, Dirckinck-Holmfeld and Coto concluded that the CoP has been successful because the participants generally expressed that, through their participation in CoP, they were able to share their experience, develop new skills, incorporate new pedagogical approaches, and most importantly, they gradually shifted from practice learners to practitioners (Dirckinck-Holmfeld & Coto, 2019). As Dirckinck-Holmfeld and Coto said: "learning is a process that changes people…the central issue in learning is becoming a practitioner, not learning about practice…a key outcome of learning, in the context of social learning, is a way of being, of being a type of person in a specific practice context, it is a process of reconstructing identity…" (Dirckinck-Holmfeld & Coto, 2019). From this point of view, the CoP is a meaningful and successful approach for effective online PD.

Administrators' Impact on Professional Development

Effective PD should not be a one-time application of practices. Teachers should be continuously practicing what they learn from their PD in their classrooms to achieve better student learning outcomes (NWEA, 2015). Administrators play an important role in fostering continuous learning and practices among their staff. Literature suggests that administrators should be creating work cultures that support positive learning environments outside of PD (Attebury, 2018). Several recommendations in literature exist on how administrators can encourage their staff to participate in PD and continuously practice what they learn in the workplace. For example, in order to increase teachers' motivation to participate in PD and help them understand why gaining new knowledge is important, administrators should engage in PD themselves and embrace new learning opportunities (Attebury, 2015; Attebury, 2018; Blakiston, 2011). Although there are several recommendations, in this paper we will discuss Stewart's (2014) professional learning community (PLC) model as a guide to help administrators build positive learning environments at their own campuses.

Stewart (2014) argues that teacher learning has shifted from a passive, intermittent PD to a more active and consistent teaching environment that is supported by peers within a PLC. She believes learning communities thrive when both administrators and teachers are invested in the work they are doing (Stewart, 2014). To build a positive PLC on their campuses, administrators must work with their teachers to identify the needs of improvement on their campus. Such collaboration should occur cyclically as shown in figure 1. In the PLC model, first administrators and teachers work together to identify students' learning needs using local student data. Once students' needs are identified, main concepts for PD can be defined and a PD program/course can be created. Teachers then attend the PD program/course to learn or review those concepts. After attending the PD program/course, teachers apply what they learned into their classrooms. They are then encouraged by administrators to continuously develop, analyze, and improve their teaching based on what they learned in the PD program/course. Teachers' practices are also observed, critiqued, and reflected upon continuously throughout the cycle.

Then, the cycle begins again starting with reviewing students' needs from the previous cycle (Stewart, 2014).
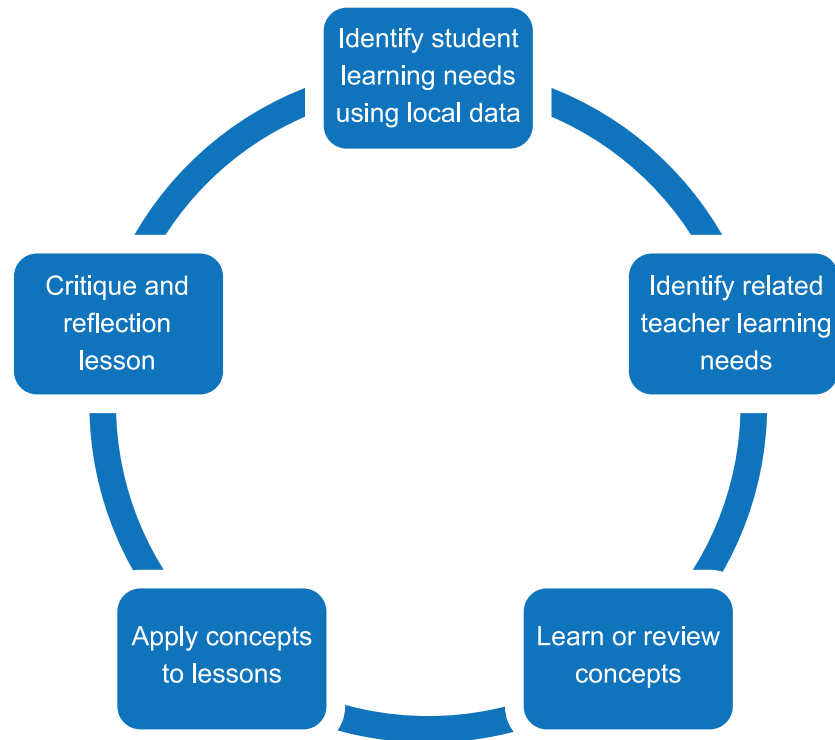
Figure 1 (Stewart, 2014)

     Any school can adopt a framework with these specific phases for continuous learning and practices outside of PD (Stewart, 2014). Theoretically, the PLC model could help administrators build a healthy professional learning environment at their campus where teachers feel personally motivated (Stewart, 2014).

     Along with integrating Stewart's PLC model (2014), Tooley & Connally (2016) suggests school and district administrators focus on the following three areas to create a true professional learning environment:

1. They should develop leaders of professional learning at the district and school levels. Leaders play an important role in successfully implementing a professional learning environment. Administrators should focus their attention here first to ensure leaders are well equipped to play these roles.

2. They should ensure evaluation and accountability systems recognize and reward effective professional learning. Accountability systems should go beyond measuring student learning and overall teacher performance and should include measures of teacher learning and improvement as well.

3. They should prioritize professional learning by creating time for teachers to pursue learning throughout the work week and ensure they have support to use that time effectively.

Conclusion

There is no universal model to guarantee success for online PD programs. However, the authors of this paper suggests the following should be considered when trying to implement an effective online PD program: the online PD program should be grounded in the needs of the participants; the online PD program should be delivered based on the technology available within the district; and the online PD program should incorporate any of the effective PD activities mentioned in this paper.

Lastly, the authors hope this paper helps school administrators become more aware of the importance of their role in developing successful PD programs, online or in person. Creating a professional learning environment at the school level, recognizing PD participation, and sharing PD resources widely among the school and district can help encourage teachers to continuously develop and apply what they learned from PD programs into their classrooms. More resources regarding online PD is provided in the appendix.

This paper is prepared by the Research and Evaluation Institute (REI) at Harris County Department of Education. If you have any questions regarding this paper or interested in the services provided by the REI, please contact REI director Darlene Breaux at dbreaux@hcde-texas.org

References

Allen, C. D., & Penuel, W. R. (2015). Studying Teachers' Sensemaking to Investigate Teachers' Responses to Professional Development Focused on New Standards. Journal of Teacher Education, 66(2), 136–149. https://doi.org/10.1177/0022487114560646

Amador, J. M., Callard, C., Choppin , J., Carson, C., & Gillespie, R. (2019). Designing and reseraching online professional development. Psychology of Mathmatics & Education of North America (pp. 1904-1912). Roanoke VA: http://www.pmena.org/.

Attebury, R. (2015). Adult education concepts in library professional development activities. New Library World, 116(5/6), 302-315. doi: 10.1108/NLW-08-2014-0100

Attebury, R. (2018). The role of administrators in professional development: Considerations for facilitating learning among academic librarians. Journal of Library Administration, 58, 407-433. doi: 10.1080/01930826.2018.1468190

Blakiston, R. (2011). Building knowledge, skills, and abilities: Continual learning in the new information landscape. Journal of Library Administration, 51(7/8), 728-743. doi: 10.1080/01930826.2011.601271

Darling-Hammond, L., Chung Wei, R., Andree, A., Richardson, N., & Orphanos, S. (2009). Professional learning in the learning profession: A status report on teacher development in the U.S. and abroad. National Staff Development Council and The School Redesign Network at Stanford University. Retrieved from https://learningforward.org/docs/default -source/pdf/nsdcstudytechnicalreport2009.pdf

Darling-Hammond, L. (2015). Getting teacher evaluation right: What really matters for effectiveness and improvement. Teachers College Press.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development. Palo Alto, CA: Learning Policy Institute.

Dirckinck-Holmfeld, L., & Coto, M. (2019). A community of practice approach to teacher professional development --Innovation and good practice . DEStech Transactions on Social Science, Education and Human Science. ICEdDE.

DuFour, R., & DuFour, R. (2015). Learning by doing: A handbook for professional learning communities. Bloomington, IN: Solution Tree Press.

Erickson, A. S. G., Noonan, P. M., & McCall, Z. (2012). Effectiveness of online professional development for rural special educators. Rural Special Education Quarterly, 31, 22–32. doi:10.1177/875687051203100104

Erkmann, M., Petersen, A. K., & Christensen , L. (2019). The three spaces model for online CPD. Designs for Learning , 118-126.

Freeman, J., Sugai, G., Simonsen, B., & Everett, S. (2017). MTSS coaching: Bridging knowing to doing. Theory Into Practice, 56, 29–37. doi:10.1080/00405841.2016.1241946

Jimenez, B. A., Mims, P. J., & Baker, J. (2016). The effects of an online data-based decisions professional development for inservice teachers of students with significant disability. Rural Special Education Quarterly, 35(3), 30–34. doi:10.1177/ 87568705160350030

Koenig, R. (2020, March 28). Pandemic may (finally) push online education into teacher prep programs. EdSurge. https://www.edsurge.com/news/2020-05-28-pandemic-may-finally-push-online-education-into-teacher-prep-programs

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, 547–588. doi:10.3102/0034654318759268

Marquez, B., Vincent, C., Marquez, J., Pennefather, J., Smolkowski, K., & Sprague, J. (2016). Opportunities and challenges in training elementary school teachers in classroom management: Initial results from classroom management in action, an online professional development program. Journal of Technology and Teacher Education, 24, 187–109. Retrieved from https://files .eric. ed.gov/fulltext/EJ1092428.pdf

Northwest Evaluation Association (NWEA). (2015). Professional development program evaluation. Retrieved from https://www.pps.net/cms/lib/OR01913224/Centricity/Domain/207/professional_ development_oct_2015.pdf

Peppers, G. (2015). Teachers' perceptions and implementation of professional learning communities in a large suburban high school. National Teacher Education Journal, 8(1), 25-31.

Reinke, W. M., Stormont, M., Herman, K. C., & Newcomer, L. (2014). Using coaching to support teacher implementation of classroom-based interventions. Journal of Behavioral Education, 23, 150–167. doi:10.1007/s10864-013-9186-0

Ryan , M., & Ryan , M. (2013). Theorising a model for teaching and assessing reflective learning in higher education . Higher Education Research and Development , 244-257.

Salmon, G. (2003). E-moderating: The key to teaching and learning online . London: Taylor & Francis. State, T.M., Simonsen, B., Hirn, R., & Willis, H. (2019) Bridging the research-to-practice gap through effective professional development for teachers working with students with emotional and behavioral disorders. Behavioral Disorders, 44(2), 107-116. doi: 10.1177/0198742918816447

Stewart, C. (2014). Transforming professional development to professional learning. Journal of Adult Education, 43(1), 28-33.

Sykes, G. (1996). Reform of and as Professional Development. The Phi Delta Kappan, (7), 464.

Tooley, M., & Connally, K. (2016). No Panacea: Diagnosing What Ails Teacher Professional Development Before Reaching for Remedies. New America.

Treacy, B., Kleiman, G., & Peterson, K. (2002). Successful online professional development. Learning and Leading with Technology, 30(1), 42-49.

Tuncel, Z.A., Cobanoglu, F. (2018) In-service teacher training: Problems of the Teachers as Learners. International Journal of Instruction, 11(4), 159-174. Doi: 10.12973/iji.2018.14411a

Wynants, S., & Dennis, J. (2018). Professional development in an online context: Opportunities and challenges from the voices of college faculty. Journal of Educators Online.

Appendix

Teaching Excellence in Adult Literacy (TEAL). (2011). Adult Learning Theories. https://lincs.ed.gov/sites/default/files/11_%20TEAL_Adult_Learning_Theory.pdf

Martin, L.E., & Frazier, D.K. (2017). Professional Development and Educational Policy: A Comparison of Two Important Fields in Education.

Martin, Linda & Kragler, Sherry & Quatroche, Diana & Bauserman, Kathryn. (2019). Transformin Schools: The Power of Teachers' Input in Professional Development. Journal of Educational Research and Practice. Doi: 9. 10.5590/JERAP.2019.09.1.13.

Smylie, M. A. (2014). Teacher evaluation and the problem of professional development. Mid-Western Educational Researcher, 26(2).