


An Analysis of Virtual Professional Development for School Leaders During COVID-19

Beverly J. Irby, Texas A&M University, USA


Roya Pashmforoosh, Texas A&M University, USA*

 <https://orcid.org/0000-0002-9394-6887>

Donna M. Druery, Texas A&M University, USA

Nariman Eljaouhari, Texas A&M University, USA

Fuhui Tong, Texas A&M University, USA

 <https://orcid.org/0000-0003-0555-892X>

Rafael Lara-Alecio, Texas A&M University, USA

ABSTRACT

As a major component of leadership development, professional development (PD) support, needs more researchers to focus on possible ways to build school leaders' instructional capacity. Despite the increasing use of virtual professional development (VPD) as venues for leadership development, little is known about the essential components of an effective VPD. With the advent of COVID-19, the authors pivoted to VPD focused on improving school principals' abilities to help teachers increase their instructional capacity. More specifically, they provided a virtual summer leadership institute (VSLI) on peer coaching via VPD. Since research on effective PD calls for school leaders to translate their learning into leadership practice, they addressed in their sequential explanatory mixed methods study how practicing school leaders in the United States perceived the effectiveness of VPD on school leaders' professional knowledge and growth related to the VPD topic of peer coaching. They conclude with seven specific principles to consider when developing and providing such a VPD experience for school leaders.

KEYWORDS

COVID-19, Instructional Leadership, Peer Coaching, Professional Development (PD), School Leaders, Virtual Professional Development (VPD), Virtual Summer Leadership Institute (VSLI)

INTRODUCTION

This study was derived from the Project Accelerated Preparation of Leaders for Underserved Schools (A-PLUS): Building Instructional Capacity to Impact Diverse Learners (PR#U423A170053; Irby et al., 2017) under the U.S. Department of Education Supporting Effective Educator Development (SEED) Program, which focused on the leadership development of school leaders working in high-needs schools across the state of Texas. The entire grant has supported school leaders by: (a)

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*Corresponding Author

recruiting and preparing leaders, (b) providing professional development (PD) activities to current school leaders, and (c) increasing the number of highly effective school leaders in schools with high concentrations of English learners (ELs) and economically challenged students (ECs). Another focus of this grant project was to promote diversity in the educator workforce by recruiting male and female school leaders, particularly targeting underrepresented participants from among those who identify as African American, Hispanic/Latino, American Indian, and Asian.

Educator PD is any type of continuing education that aims to increase the educator's skills, which in turn, is likely to improve student outcomes (Park et al., 2019; Youngs & King, 2002). According to researchers, PD can provide opportunities for personal development, strong community relationships, a collective purpose, and flexibility among participants (Archer & Max, 2018; Darling-Hammond & Rothman, 2015; Gray & Bishop, 2009; Robbins, 2015). PD has received a plethora of attention from both practitioners and researchers (Durr et al., 2020; Kampen, 2019; Kao & Tsai, 2009; Mizell, 2010) and within different formats, such as online communities (Dede et al, 2009; Kling & Courtright, 2003; Lin et al. 2008; Mazat, 2013; Schlager & Fusco, 2003). Expanding the concept of PD, Talakoub (2020) suggested that digital professional learning provides almost unlimited opportunities for educational professionals to establish, engage and grow their own professional networks while increasing their pedagogical and content knowledge.

Although many PD programs exist, according to Stewart and Matthews (2015), only a few researchers have studied the effectiveness of PD for K-12 school leaders or principals. According to Allen and Weaver (2014), there are even fewer researchers who have evaluated evidence-based PD for building principals' leadership capacity. Further, a cursory search of synchronous and asynchronous PD for principals and teachers yielded only 27 entries, with only one article specifically discussing an asynchronous PD model (Keith, 2016). More specifically, few researchers have discussed building leadership capacity via virtual professional development (VPD) (Irby et al., 2017; Tong et al., 2015) within an asynchronous format for educators.

BACKGROUND

Summer Leadership Institutes

Due to the difficulties providing face-to-face PD for our Summer Leadership Institutes (SLIs) during the onset of the pandemic, we were challenged to provide non-face-to-face PD and did so with VPD for the SLIs. Regardless of the difficulties, we knew that the training must serve as a guide to improve performance and build capacity for the organization.

One of the grant goals was directed toward building leadership capacity in high-needs schools via Summer Leadership Institutes (SLIs) over three summers through 2020. The first year of SLIs (October 1st, 2017 – September 30, 2018) served as the pilot program of the component, with 27 school districts and 121 school leaders in attendance. During Year 2 (September 31, 2018 - October 1st, 2019), 22 campuses and one district administration team attended, for a total of 116 participants in attendance. For both years, there were a total of 239 school teams and leaders in attendance. During 2018 and 2019, the SLIs were conducted face-to-face and held at local hotels in the city. Recruitment flyers were sent to school districts across the state; up to five members of a district leadership team were able to attend. Leadership teams could include the superintendent, administrators, counselors, teachers, or any district personnel chosen by the leadership team. Accommodations for all participants and presenters were made by the SLI team. Training for educators occurred over the course of three days, during which participants received 45 hours of training as a micro-credential upon completing the SLIs. SLI topics focused on instructional capacity-building and included critical dialogues, climate enhancement, culturally responsive pedagogy, inclusive schools, bullying prevention, parental/community engagement, and strategic planning for Campus Improvement Plans. Because space was limited to the first 20 school teams to sign up, there were over 100 participants and presenters during the face-to-face institutes each year.

Year 3 found us, along with the rest of the world, in a global pandemic due to the novel coronavirus COVID-19. This required all of the SLIs to go to VPD, reframing and rebranding the SLIs into virtual SLIs (VSLIs). Leaders received intensive training in the techniques of peer coaching, peer coaching models, peer coaching in emergency situations like COVID-19, effective peer coaching, and engaging in peer coaching activities. We ended the VSLI by helping the participating leaders develop a plan for implementing peer coaching in their schools. This 5-hour VSLI training was pre-recorded, delivered in an asynchronous format, and aired via our partner, LogMeIn GoToWebinar. Thus, the purpose of our study was to determine how the participating school leaders perceived VPD effectiveness for the VSLI on leadership practices related to peer coaching. In this paper, we have equated VSLI with VPD.

MAIN FOCUS OF THE ARTICLE

There are multiple research studies in the areas of coaching, mentoring, and PD across the disciplines. However, there are few research studies related to VPD for school leaders, and even fewer have evaluated VPD's efficacy in improving school leaders' practices. Our proposed intervention in this study was to improve school principals' capacity to help teachers increase their instructional capacity via participation in a VPD or, more specifically, within VSLIs on the topic of peer coaching. In this section, we discuss PD and VPD for school leaders.

Professional Development for School Leaders

School leaders must navigate school improvement in a rapidly changing and pressure-packed environment (Protheroe, 2010). Developing leaders' instructional capacity and qualifications through ongoing PD programs represents one solution for addressing such challenges. Various forms of PD programs, including seminars, workshops, national conferences, webinar training, and micro-credentials have been used in educational settings for such purposes (Goldring et al., 2012; Wang & Hsu, 2008). According to Rowland (2017), some shortcomings that school leaders face with principals' PD are the scarcity of relevant and effective principal preparation and PD programs as well as a lack of effective coaching for school leaders newly appointed to high-needs schools. Meanwhile, districts are employing new principals, and continuing professional education should be offered to provide educators with the necessary resources, PD, and support that can truly transform their instructional capacity and enable them to fulfill their roles effectively.

Noting this in a national policy study on PD and principal leadership, Davis, et al. (2020) determined that more research and practice information is needed related to the PD of school leaders. Even though rigorous empirical research on PD for improving school leadership traditionally has been limited (Harris & Chapman, 2002; Mulford et al., 2004), there is some evidence that PD influences principals' knowledge, practice, and beliefs. For example, researchers (e.g., Jacob et al., 2015; Miller et al., 2016) revealed the positive influence of PD on building leaders' instructional leadership capacity and school improvement. Pont et al. (2008) examined the key factors contributing to PD for school leaders, including assessment and accountability, strategic financial management, and collaboration. They found that school leaders need to collaborate with each other and monitor the performance of other school leaders. External assistance such as peer coaching and PD support is key to helping school leaders stay focused on priorities and contribute to school improvement and success efforts (Gimbel & Kefor, 2018; Wang et al., 2020).

According to Darling-Hammond et al. (2009), PD offerings for principals often fail to: (a) align program content and principal needs; (b) link professional learning with school or district needs; and (c) leverage job-embedded learning opportunities (e.g., applying new skills or working with a coach or team) to focus on a specific issue at school. Other studies on principals' leadership PD have been progressing over the past decade. Mizell (2010) stated that principals need PD to address their specific roles and responsibilities. In a later study, Stewart and Matthews (2015) investigated the need to provide PD for principals serving in high-needs schools. They reported that the rural school

principals in their study spent less time collaborating with other principals due to lack of proximity with other schools compared to their urban and suburban counterparts, a situation that would appear to indicate a lack of peer coaching. In fact, Gimbel and Kefor (2018) found that some school leaders are often left to comprehend difficult job duties in isolation without leadership PD or discussion and collaboration among other school leaders who may act as peer coaches. Further, Gimbel and Kefor noted the inadequacy of funding to provide strong PD still remains an issue for the school leaders' leadership development. Despite the increasing use of PD for leadership development, the empirical research utilizing evaluation methods is still limited.

Virtual Professional Development for School Leaders

Schools may offer PD in the traditional face-to-face and/or online format. In comparison to face-to-face PD, the pervasiveness of technology has led to a rise of VPD (Irby et al., 2017; Tong et al., 2015). VPD establishes scheduling flexibility, greater rapport, and participant pairing that may be geographically impossible in a traditional setting (Archer & Max, 2018; Stannard & Matharu, 2014). The use of VPD has grown substantially over the last two decades with technological advances and the expanded availability of high-speed internet. State education agencies and school districts utilize VPD to cut costs associated with face-to-face PD as well as to offer teacher leaders more PD opportunities (Shea et al., 2018). Irby et al. (2017) suggested that VPD allows teacher leaders to work comfortably at their own pace and level of engagement. Most educators recognize the advantages of online PD, which include workplace flexibility, using a variety of instructional approaches, access to experts and valuable resources, and, above all, eliminating travel expenses (Dede et al., 2009). Additionally, Rock (2019) found no statistical difference between face-to-face and online PD in student achievement outcomes.

While rigorous empirical research on VPD for school leaders is still limited, evidence has emphasized investing in opportunities for principals' continuous leadership training and instructional improvement (Cogshall, 2015). The interest in the use of VPD for leadership development is expanding, since VPD allows school leaders to have access to useful resources and new developments in leadership practices (Levin & Schrum, 2014; Machado & Chung, 2015; Wang, 2010). There is still much to accomplish in identifying those aspects of VPD that contribute to effective, high-quality professional growth and learning for school leaders.

Conceptual Framework of VPD Within a Virtual Summer Leadership Institute

The National Education Association (NEA) Academy Content and Quality Review Board (2014) has provided standards for evaluating components of PD. These standards cover a number of areas, including: (a) design, (b) interactivity, (c) support, and (d) demonstration of participant learning. VPD does not have set standards; however, based on our research and VPD innovations, we begin our conceptual framework with the major VPD components related to effective school leadership practices: (a) time of offering, (b) engagement, (c) time online, (d) content, (e) visuals, (f) pre/post assessment and periodic checks for understanding, and (g) organizer and support team. Furthermore, the A-PLUS grant's SLI topics initially included: (a) topics that advance leadership skills, (b) topics that help leaders improve instructional capacity for teachers, and (c) topics that improve strategic planning and school improvement (Irby et al., 2017). Combining VPD and SLI into VSLI allowed practicing school leaders to share leadership, research, and resources, which then provided participants an avenue for collaborating with other school leaders as they went through the VPD sessions (Irby et al., 2017).

VSLI was intended to help school leaders gain knowledge and improve skills important to their positions and job performance while assisting teachers with instructional improvement (Irby, 2012). We offered VSLI via GoToWebinar. During the VSLIs, we also included research-based compelling topics, recruited well-known or respected guest speakers, and worked to keep content meaningful in a short amount of time.

Foster (2020) offered the following as pros and cons related to what he called virtual conferences, which we equate with our VSLIs. The pros noted by Foster included: (a) low cost, (b) time-saving, (c) better logistics, (d) efficient marketing, (e) scalability, (f) wider outreach, (g) effective networking, (h) evergreen content, (i) accessibility, (j) data gathering, and (k) wardrobe. Foster also provided cons such as: (a) lacking human contact, (b) less excitement, (c) distractions, (d) fewer effective sponsorships, and (e) limited technological literacy.

A Google search of *school leaders to turn to webinars* (we used webinar due to the lack of literature related directly to the term, VPD) yielded 8,120,000 hits in just .55 seconds, including our VSLIs. General PD for leadership development exists. However, published research on utilizing empirical methods for evaluation and engaging school leaders through VPD to improve leadership and services to schools is limited.

PURPOSE OF THE STUDY AND RESEARCH QUESTIONS

Our proposed strategy was to provide VPD that offered principals more information so they could help teachers improve their instructional capacity. The specific VPD, via the VSLI, was focused on peer coaching. The purpose of our study was to determine how practicing school leaders perceived the effectiveness of VPD, via a VSLI program, on their instructional leadership practices related to peer coaching. We examined the VPD with a sequential explanatory mixed methods approach. To guide this study, we addressed the following research questions:

1. After participating in a VPD (VSLI) session, to what extent did practicing school leaders' knowledge of the presented topic, peer coaching, change from pre- to post-assessment?
2. What were the perceptions of the participants related to delivery of the VPD (VSLI)?
3. What were the perceptions of the participants related to the overall effectiveness of the VPD (VSLI)?

METHOD

School leaders from the United States participated in a VPD (VSLI) on peer coaching during the summer academic break in June, 2020. Participants enrolled in the VPD, and our goal was for them to learn about leadership practices related to peer coaching. Data sources for this VSLI included school leaders' perceptions of the VSLI content's effectiveness via pre- and post-questionnaires and responses to reflective questions. These measures provided participants' demographic information, their perceptions of the VSLI, and their learning goals and professional growth (e.g., the knowledge increase in instructional leadership development and capacity-building related to peer coaching).

Context

School leaders participated in a one-day, 5-hour VSLI during the summer academic break, registering for VPD provided by professionals on strategies including reflective, personalized, and experienced-based peer coaching content that was relevant and personal to the practicing school leaders. The VPD sessions were monitored by a coordinator who had served as a school leader.

The Virtual Summer Leadership Institute (VSLI) Development

The VSLI for 2020 originally had been planned for face-to-face interactions; however, we decided in March, 2020 to change the venue to VPD based on the projected COVID-19 situation. Specifically, we proposed and developed a research team action plan for scheduling dates and VPD delivery, which targeted instructional quality to promote learning within the VSLI. Though the GotoWebinar is a tool that supports VPD, our team was not proficient in its use. With the assistance of the grant's official

partner, LogMeIn, our team was trained quickly and, out of necessity, became proficient with much practice and trial runs producing pre-recorded VPD sessions.

We provided pre-recorded VPD through presentations that included reflective, personalized, and experience-based content relevant to the participating school leaders. We provided school leaders with a VPD and supporting sources applicable to various school settings. Through the GoToWebinar tool, school leaders followed the schedule, including the purpose and objectives of each VPD module. We recommended strategies to increase success in a virtual environment by providing flexible view dates, including dates for participants to engage with the VPD sessions, dates for completion of the post-questionnaires, clear guidance, and organized course modules. The research team also maintained frequent email communication so participants would know what was expected of them before, during, and after the VSLI. Topics for modules within the VSLI included: (a) introductions to techniques of peer coaching, which was provided so all participants would understand peer coaching elements and responsibilities, (b) peer coaching models, which discussed peer coaching and provided opportunities to apply a model for peer coaching in high-needs schools, (c) peer coaching in an emergency situation (such as COVID-19), which provided information regarding accountability, responsibilities, and ways to successfully navigate change, and (d) effective peer coaching, which included challenges and resources of collegial peer coaching for leaders in school settings.

Participants

One hundred eighty-one school leaders participated in the VSLI *Engaging in Peer Coaching*. We used responses of the 159 participants completing both pre- and post-questionnaires after matching their answers. The federal grant provided necessary resources for participants who were from schools characterized as high-needs with high populations of ELs and ECs. The majority of participants were female (84.37%). The participants self-identified as White (55.9%), African American (21.3%), Hispanic (19.7%), and Asian (3.1%). Years of administrator experience ranged from less than 5 years (3%), 6-10 years (20.5%), to more than 11 years (76.5%). Overall, the participating schools were 81.1% Improvement Required on student achievement. Improvement Required schools are considered failing schools in Texas.

Instruments

Data sources included school leaders' pre-and post- questionnaires and reflective open-ended questions. These measures provided information about the participants' backgrounds, their perceptions of the VSLI and their learning gains (e.g., their knowledge increases in peer coaching), and their perceptions of the VPD's essential components and delivery. To measure the increase in professional learning and growth after participating in VSLIs, participants completed a pre- and post-questionnaire related to peer coaching. The questionnaire was designed based on the research purpose and content planned for the VSLI on peer coaching. The reliability in terms of internal consistency was also calculated based on Cronbach's alpha, which was reported as $a = 0.85$ for the pre-questionnaire and $a = 0.89$ for the post-questionnaire. According to Pallant (2010), reliability coefficients above 0.70 are acceptable.

Pre-Questionnaire

The pre-questionnaire had three sections. The first section queried participants' demographic information. The second section contained five questions relating to the participants' experience and expectations of this VPD related to peer coaching. The questions included the participants' experience and/or training in coaching and peer coaching, their interest in being a peer coach for teachers and educators, the topics related to peer coaching that appeal to them, and their expectations to learn about peer coaching. The third section had 5 items about the participants' experience with peer coaching. The questionnaire items of this section were about: (a) the degree of the participants' familiarity with peer coaching, (b) the extent participants feel confident in coaching techniques, (c) the extent they feel confident in their general knowledge regarding peer coaching techniques, (d) the extent they feel

confident in improving the quality of feedback, and (e) the degree of their familiarity with reflective dialogue. The key areas of literature that informed this VSLI comprise peer coaching (Robbins, 2015; Robertson, 2011); coaching techniques (Irby, 2020); peer coaching techniques (Irby, 2020; Rackley & Hammer, 2019; Robbins, 1991); dialogic feedback (Charteris & Smardon, 2014; Yang & Carless, 2013), and reflective dialogue (Lambert, 2003; Garvey-Berger, 2012).

Post-Questionnaire

The post-questionnaire had four sections. The fourth section of the post-questionnaire contained the same questions asked in the pre-questionnaire (third section), which were 5 items on a 5-point Likert scale. In the first section, participants evaluated the effectiveness of the VPD delivery. The second section included 10 items on a 5-point Likert scale measuring the participants' evaluation of the overall effectiveness of VSLI content. In the third section, we included three open-ended questions about: (a) the important concepts/ideas they learned in this VSLI, (b) other topics they would like to learn, and (c) their suggestions and recommendations to improve the quality of the components and delivery of future VPD.

Data Collection Procedure

Participating school leaders completed self-reported pre- and post-questionnaires related to topics of the VSLI on peer coaching. For these, since the research questions addressed the difference in responses over the course of the VSLI, only participants who completed both pre- and post-phases of the questionnaires were included in the analysis. Per Institutional Review Board (IRB), we sent the pre-questionnaire two days prior to the beginning of the VSLI and then followed up with the post-questionnaires after participants completed the VSLI, with the post-questionnaire being deemed final on July 4th, 2020 for all completers.

Data Analysis

We used a sequential explanatory mixed methods design (Ivankova et al., 2006). Descriptive statistics for all research questions, including measures of central tendency, variability, and frequency counts, were conducted using SPSS version 25. Mean scores were calculated based on the main subscale indicators. For research question 1, we also used a paired samples *t*-test in order to compare the pre- and post-results from the questionnaires. For research question 2, the post-test mean scores per item were used and percent of response for the ratings of Very Good or Good were used. For the second and third research questions, for the qualitative research, we included open-ended questions in the pre- and post-questionnaire. The constant comparative analysis technique from Corbin and Strauss (2015) was utilized to obtain results in response to the second research question. The data were organized into a matrix using a systematic coding method (Glaser & Strauss, 2017) to display the emerging patterns and themes (Patton, 2002). The recurring themes were extracted through comparison within and between each individual participant's responses. We continued to explore the emerging themes until no change was observed in the data.

Credibility and Trustworthiness: Qualitative Study

Triangulation and member checking (Creswell & Clark, 2017; Lincoln & Guba, 1985) were used to enhance the credibility and trustworthiness of the study. We operationalized credibility through the process of member checking to test the findings with the participants' responses (Lincoln & Guba, 1985). The data were triangulated with the researchers to identify points of convergence and divergence (Creswell & Clark, 2017). We compared the participants' responses to the open-ended questions with the questionnaire outcome, explained key patterns and elements, and identified the agreements and disagreements both within and between sources to inform the corroboration of the findings. Findings and inferences of this study were cross-checked using an iterative process through data analysis and coding to promote understanding.

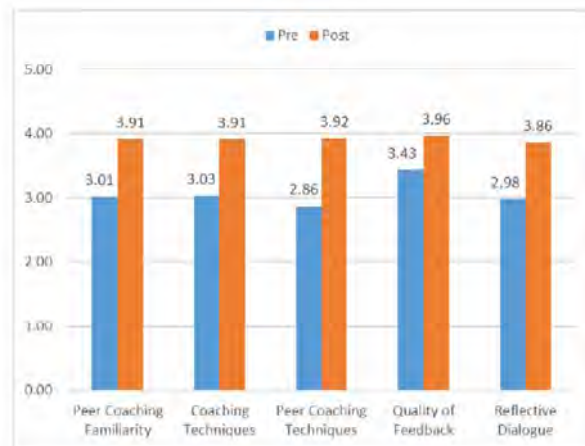
RESULTS

We present our results below each research question. The results correspond to the questions related to how practicing school leaders perceived the effectiveness of the VPD (VSLI) on their leadership practices related to the participants': (a) knowledge of peer coaching, (b) perceptions of the overall effectiveness of the delivery of the VSLI, and (c) perceptions of the overall effectiveness of the VSLI.

Research Question 1. After participating in a VPD (VSLI) session, to what extent did practicing school leaders' knowledge of the presented topic, peer coaching, change from pre- to post-assessment?

The participants' responses to the questionnaire items were analyzed quantitatively. Figure 1 indicates the average rate by participants ranged from a low of 3 (on a 5-point Likert scale) before the VSLI to a high of 3 after the VSLI. The participants' ratings before the VSLI were for peer coaching familiarity ($M = 3.01$, $SD = 0.83$), coaching techniques ($M = 3.03$, $SD = 0.68$), peer coaching techniques ($M = 2.86$, $SD = 0.80$), quality of feedback ($M = 3.43$, $SD = 0.87$), and reflective dialogue ($M = 2.98$, $SD = 0.75$). The participants' ratings increased after the VSLI in terms of their peer coaching familiarity ($M = 3.91$, $SD = 0.75$), coaching techniques ($M = 3.91$, $SD = 0.71$), peer coaching techniques ($M = 3.92$, $SD = 0.69$), quality of feedback ($M = 3.96$, $SD = 0.74$), and reflective dialogue ($M = 3.86$, $SD = 0.72$).

Figure 1. Participants' Perceptions of the Effectiveness of the VSLI Related to Peer Coaching



The results of t -tests per each item is given in Table 1, indicating statistically significant differences in participants' mean scores in terms of their peer coaching familiarity ($t(158) = -11.86$, $p < .001$), coaching techniques ($t(158) = -13.12$, $p < .001$), peer coaching techniques ($t(158) = -15.13$, $p < .001$), quality of feedback ($t(158) = -6.39$, $p < .001$), and reflective dialogue ($t(158) = -11.48$, $p < .001$). Cohen's d value for each item indicated a large effect size above 0.80.

In addition, the total results of a paired samples t -test indicated a statistically significant difference in participants' total mean scores before the VSLI (M total = 3.06, $SD = 0.57$) to their total mean scores after the VSLI (M total = 3.90, $SD = 0.61$), $t(158) = -15.57$, $p < .001$. The mean difference before and after the VSLI was -0.84 with a 95% confidence interval ranging from -0.95 to -0.73. The total Cohen's d value of 1.23 indicated a large effect size.

Table 1. Paired samples t-tests

	Paired Differences				t	df	Sig (2-tailed)	Cohen's d
	M	SD	SEM	95% CI				
Peer-Coaching Familiarity	-.89	.95	.076	[-1.04 -.75]	-11.86	158	<.001	0.95
Coaching Techniques	-.87	.84	.067	[-1.00 -.74]	-13.12	158	<.001	0.84
Peer-Coaching Techniques	-1.05	.88	.070	[-1.19 -.91]	-15.13	158	<.001	0.88
Quality of Feedback	-.52	1.04	.083	[-.69 -.36]	-6.39	158	<.001	1.04
Reflective Dialogue	-.87	.96	.076	[-1.02 -.72]	-11.48	158	<.001	0.96
Total	-.84	.68	.054	[-.95 -.73]	-15.57	158	<.001	1.23

Research Question 2. What Were the Perceptions Of The Participants Related To Delivery of the VPD (VSLI)?

This research question was answered using both quantitative and qualitative data. Post-test scores with descriptive statistics were used to answer this research question quantitatively. Table 2 indicates that the mean ratings on the delivery of the VSLI by participants ranged from 3.54 to 4.22 out of 5 possible points. The participants assigned the two highest scores to organization (M = 4.22, SD = 0.66) and content (M = 4.11, SD = 0.82) of the VSLI. Among the lowest ratings were for participant involvement, with the mean value of 3.54 (SD = 1.11) and use of instructional aids (M = 3.74, SD = 1.08). However, this VPD was presented as a pre-recorded VPD; thus, participants were not engaged with each other.

Qualitatively, open-ended questions for the post-test were used to also determine participants' perceptions related to delivery of the VSLI as VPD. The practicing school leaders in the VPD attributed their leadership gains to the substantial opportunities to reflect on the VSLI. They claimed that the built-in training activities pushed them to think about the content they just studied and promoted a reflection focused on changes they could make in their school contexts and the potential impact on school development. Not only did the training materials facilitate reflection, the VPD delivery's asynchronous format also provided considerable opportunities for participants to conduct a reflective process by sharing experiences. For example, a participant commented:

Whether we continue with virtual learning or return to the campus, VPD can be helpful and effective because it gives the staff an opportunity to still access the information at convenient times.

Table 2. Descriptive statistics of the delivery of the VSLI as VPD

	Mean	SD	Good (%)	Very Good (%)
Content	4.11	0.82	50%	33%
Organization	4.22	0.66	59%	33%
Creating interest in topic	3.89	0.87	48%	24%
Involvement of participants	3.54	1.11	26%	24%
Use of instructional aids	3.74	1.08	39%	26%
Pace of delivery	3.93	0.92	46%	28%
Training Materials	3.89	0.92	48%	26%

The participating school leaders in this VPD advanced the goal of having a continuous PD in place on campus by using virtual professional training and support, particularly during the pandemic. Through VPD, participants were provided with useful professional growth resources that they could access at times and locations convenient for them. A principal, for example, stated:

During these unprecedented times, the virtual learning environment allowed flexibility and support for PDs.

Likewise, participants' responses related to virtual delivery centered on change. These changes included opportunities for reflection with their educator colleagues, and they pointed to the need for continuous professional growth for teachers and school leaders. For example, an assistant principal commented:

As a reflection on what was learned in this VPD, I think it is important to have our new teachers this year be able to share their knowledge to new teachers next year in order to give them opportunities to lead and peer coach themselves.

Research Question 3. What Were the Perceptions Of The Participants Related To The Overall Effectiveness Of The VPD (VSLI)?

The third research question was answered using both quantitative and qualitative data gleaned from the participants. As shown in Table 3, the participants agreed that this VSLI has engaged them in self-improvement and continuous learning related to peer coaching (item 5, $M = 4.02$, $SD = 0.83$). Most of the participants (80%) indicated a willingness to apply the knowledge/skills learned from the VPD in their work (item 10, $M = 4.41$, $SD = 0.90$) after receiving the training. Over 70% of the participants also agreed that the content of the VSLI was useful to enhance their leadership and coaching competencies (item 3, $M = 4.07$, $SD = 0.77$).

Qualitatively, the results of open-ended questions revealed the aspects that participants thought were effective and would have positive impacts on their professional learning and leading related to peer coaching. As displayed in Table 4, the qualitative analysis results revealed three major themes that the participants thought were effective based on their experiences in the VPD: (a) intriguing topics, (b) focused content, and (c) opportunities to reflect.

Intriguing Topics Related to Peer Coaching

In general, the participants' responses revealed that this VSLI: (a) provided principals with intriguing topics related to peer coaching techniques and leadership support and (b) had the potential to help them improve their teachers' instructional leadership practices. After participating in the intensive VPD offered by the VSLI, the participants felt more equipped with highly useful leadership skills and knowledge for impacting the schools and programs that serve a large number of ELs, ECs, and their respective families. As an example, one participant wrote:

I just wanted to say thank you for doing this for us. I thoroughly enjoyed all of the topics of the webinar. I love the fact that we were able to look through the webinar at our own pace. I like to dive deep and take notes.

Participants reported that they benefited the most from techniques of peer coaching, approaches, and thought processes around various topics. After the VSLI, the participants confirmed that peer-coaching is a valuable skill which enables them to learn from another person who can relate their

Table 3. Descriptive statistics of the overall effectiveness of the VSLI as VPD

	Mean	SD	Agree (%)	Strongly Agree (%)
1. The VSLI was informative and provided a coherent learning experience related to peer coaching.	3.83	0.76	46%	20%
2. The VSLI helped me to reflect on my teaching practice and the ways to improve it.	3.93	0.87	37%	30%
3. The content of the VSLI was very useful for me to enhance my leadership and coaching competencies.	4.07	0.77	41%	33%
4. The topics covered in the VSLI helped me see another point of view of how work is performed and/or situations that occur in my work.	4.02	0.74	46%	28%
5. The VSLI has engaged me in self-improvement and continuous learning related to peer coaching.	4.02	0.83	39%	32%
6. The VSLI has inspired me to develop relationships with others inside and outside the school.	3.91	0.98	39%	30%
7. I feel I have a stronger foundation for solving the problems I am facing in my work related to the content presented at this VSLI.	3.89	0.90	39%	28%
8. The VSLI helped me to expand my ideas, generate new ideas and/or develop skills related to peer coaching.	3.89	0.84	48%	24%
9. The VSLI helped me better understand how to promote and maintain a supportive learning environment.	3.96	0.84	44%	28%
10. I look forward to applying the knowledge/skills that I learned from the VSLI in my work.	4.41	0.90	15%	65%

Table 4. Qualitative evaluation: themes and sub-themes

Major Themes	Sub-themes
Intriguing topics related to peer coaching Focused content Opportunities to reflect	peer coaching techniques leadership support instructional practices suitable to the level of their experience consistent with description useful to their work reflective modules resources for future use

experience. Additionally, the practicing school leaders learned the importance of coaching and being coached as a result of attending this VPD. They highlighted the value of trust in coaching relationships and creating strong communication with teacher leaders as well as the significance of implementing peer-coaching in emergency situations. One of the participants added:

I loved that informational topics were easily and readily available to return to campus and implement ...Based on the topics discussed, every leader needs a coach/mentor and peer-coaching is not an evaluative tool. As a result of the training, I am willing to be coached/mentored as I grow as a leader in addition to changing my leadership to better meet needs of students or staff.

Focused Content

An analysis of the participants' responses revealed that VPD content was highly associated with school leadership development, specifically focusing on instructional leadership development. Participants asserted that the sustained focused content and teaching materials improved school leaders' practices for helping teachers enhance their instruction. Furthermore, the research-based content with real-world examples enabled the participants to obtain an in-depth understanding of leadership knowledge and practices. One practicing school leader's statement was representative of the participant experience:

I really appreciate the case scenarios, and examples and non-examples given in each module. This helps me visualize and make the research come to life.

In particular, school leaders' responses regarding their professional growth and efficacy related to this VSLI content revolved around: (a) leveraging their skills; (b) the possible ways they could be involved in peer coaching and revisiting their leadership practices during the pandemic; and (c) the likelihood that they would use peer coaching techniques based on information received during the VPD. The participants attested that the VSLI was effective, commenting that peer coaching and support as an extension of their instructional leadership would be helpful.

Opportunities to Reflect

The practicing school leaders in the program also attributed their leadership gains to the substantial reflection opportunities in the VPD. Participants stated that the pre-recorded VPD pushed them to think about the content they just studied and promoted reflection about changes they could make in their schools. One of the participants, for example, commented:

I feel refreshed and excited about this new year. I have downloaded the reflection app. I know that this will help me grow.

In the post-reflection questions, the participants reported favorably in terms of increasing reflection opportunities among participating school leaders as a result of this VPD. The participants stated that the VSLI provided a holistic reflective process. Through reflective dialogues, they were also able to connect with and learn from leaders inside and outside of the district. Reflective dialogue was the actual learning in and of itself, which engaged and guided each individual participant. One participant contended:

I think reflection has kind of broadened my perspective during the training. And you know, the program that has this way of developing leaders through reflection.

DISCUSSION

Given the COVID-19 situation and the difficulties school leaders encountered communicating face-to-face with their teachers, equipping them to work virtually through VPD participation helped advance their own instructional leadership capacities to lead their teachers' instructional improvement. At the onset of COVID-19, we quickly transitioned our traditional face-to-face summer PD for leaders to a virtual PD format. Therefore, we aimed to examine if the practicing school leaders' perceptions of the VSLI on their leadership practices related to peer coaching varied from before to after the VSLI. We employed a sequential explanatory mixed method in which both quantitative and qualitative data were collected and analyzed to examine the participants' perceptions related to the delivery and overall effectiveness of the VSLI.

Gegenfurtner et al. (2020) noted that mixed methods were rare in terms of assessing webinar-based training. We found no research on mixed methods approaches analyzing virtual or online PD for school principals; there was one mixed methods study in online PD published in 2002 by Ertmer et al. that reported on the engagement of technology leaders in online PD. Additionally, we found no quantitative studies on virtual PD for leaders.

In our mixed methods study, we used quantitative analysis to answer the first research question. The results of paired samples *t*-tests indicated statistically significant differences in school leaders' mean scores from pre-to-post assessment in (a) peer coaching familiarity, (b) coaching techniques, (c) peer coaching techniques, (d) quality of feedback, and (e) reflective dialogue with a large effect size. The findings indicate that VPD was effective for improving principals' knowledge on a specific topic of peer coaching. Our study appears to represent one of the few studies in the United States on VPD related to building principals' instructional leadership capacity.

To answer the second question, we used mixed methods, employing quantitative analysis first, using descriptive data from the post-questionnaire. Second, we conducted a qualitative analysis of school leaders' reflections. Descriptive statistics indicated that the school leaders assigned the two highest scores to VPD organization and content and the lowest scores to use of instructional aids and participant involvement. The lowest scores were based on the fact that this VPD did not have specific instructional or training aids, and the VPD was asynchronous. As the leaders focused on content in this VPD, they indicated they were able to: (a) review the importance of active listening in peer coaching; (b) become familiar with the techniques in peer coaching; (c) understand the importance of reflection to peer coaching; and (d) know the needs and responsibilities of the coach. Rather than giving "how to" advice as peer coaches, the participants in this VPD were shown "how to" engage in active listening so peers could aid them in reflecting upon their own practice. Irby (2020) shared techniques related to the topic of peer coaching provided in this VPD: (a) plan what to say during peer coaching, (b) bridge theory, (c) bridge research, (d) focus on teacher-student interaction, (e) practice active listening, (f) focus on content, (g) focus on pedagogy, (h) talk about other observations and unobtrusive measures, and (i) transform and improve their practice.

The third research question was answered using both quantitative and qualitative data. Quantitatively, the majority of the participants rated the overall effectiveness of this VPD as highly useful to enhance their leadership practices related specifically to peer coaching. The participants agreed that this VPD engaged them in continuous learning and growth related to peer coaching. In line with the quantitative results, the qualitative results indicated that the VPD facilitated an exchange of ideas and encouraged reflection between professionals as reported by the school leader participants. Tong et al. (2015) found an overwhelmingly positive perception toward the VPD. Tong et al. indicated the successful scalability of increasing the geographic spread of VPD and found positive themes including: (a) Time/Location, (b) Recorded Sessions, (c) Question/Answer Forum, and (d) Excellent Content and Instructional Information. The themes for this current study are aligned with the findings presented in the former study of Tong et al. (2015).

Having participants complete asynchronous VPD (VSLI) at their own pace was also valuable and meaningful for school leaders in the study. They suggested further evidence-based VPD programs for school leaders to equip them with tools and resources to increase school effectiveness. Irby et al. (2017) suggested that VPD allows teacher leaders to work at their own pace while they prioritize their level of engagement. Among the negative themes identified were: (a) some content was self-explanatory, (b) more modeling would have been beneficial, and (c) personal computer issues - bandwidth. In addition, we found three major themes that the school leaders thought effective based on their experiences related to the VPD topic of peer coaching, including: (a) intriguing topics, (b) focused content, and (c) opportunities to reflect.

We found that the importance of reflection in the VPD topic of peer coaching can be encouraged by enacting shared leadership for professional learning. Similarly, Colmer (2017) pointed to the value of professional dialogue to nurture reflective practice for school leaders. Ng et al. (2016) revealed

that self-reflection is required in a leadership development program. Collaborative reflective dialogue (Colmer, 2017) with intriguing topics and focused content encouraged active participation within the VPD. The use of reflection for improving the participants' leadership capacity in solving various instructional issues, as revealed earlier (e.g., Ma et al., 2018), offers a new vision for leadership improvement and school effectiveness. Reflective practice was beneficial to school leaders for continuous professional learning, with opportunities to reflect and identify peer coaching techniques to constantly improve their practice and develop expertise (Martinez, 2015; Patterson, 2015). Similarly, in line with previous researchers (e.g., Volz-Peacock et al. 2016), we found that making reflection a priority during the VPD encouraged the participants to: (a) internalize their learning; (b) be aware of the importance of self-reflection to improve their leadership capacity in peer coaching; and (c) recognize that their professional learning is related to school success.

CONCLUSION AND IMPLICATIONS FOR PROFESSIONAL PRACTICE

Based on the findings of the present research on the effectiveness of VPD for school leaders, seven principles for effective VPD emerged upon discussion of the findings with the research team. Those are as follows:

1. The VPD should be well organized.
2. The content should:
 - a. Be engaging
 - b. Be intriguing and informative
 - c. Enhance competencies related to the VPD topic of peer coaching
 - d. Help to consider differing points of view
 - e. Expand ideas, generate new ideas, and develop peer coaching skill
 - f. Be suitable to the level of participant experience.
3. The VPD organizers should promote and maintain a supportive learning environment.
4. There should be a dedicated time commitment on the part of the participants.
5. The pace of delivery in VPD is important to consider.
6. Virtual training materials should be provided to participants.
7. Reflection should be included in the VPD.

While all school leaders can benefit from effective VPD, the power of a high-quality VPD may have special significance for them and their schools in making improvements. Additionally, quality VPD that can bring in external support via expert professional developers can help school leaders stay focused on priorities and transform schools into strong professional communities. These findings can also help policy makers legislate new PD policies informed by the new virtual learning environment.

The findings from this study indicated that when participants receive peer coaching training, they believe that their leadership related to coaching is enhanced. Further, we determined that the concept of reflective practice is enhanced by engaging participants in self-improvement and continuous learning related to peer coaching. We ascertained that standards for VPD could establish a continuity bridge between general leadership development and more targeted, task-specific, evidence-based VPD for building principals' leadership capacity. Perhaps the seven principles we determined in this specific VPD (VSLI) will aid in building a set of VPD standards, particularly for school leaders. Based on the data from this VSLI, we found VPD to be particularly important during the COVID-19 pandemic. The pandemic forced VPD organizers to think carefully about how to best deliver the content at a distance for all educators.

Two limitations of the study that might affect the generalizability of the findings are the study participant pool and the necessity of follow-up studies to examine the long-lasting effects of this VPD. Future VPDs could be broadened to involve more school leaders from more diverse school contexts and locations. Moreover, subsequent research investigating the VPD's effect on participants over time

could highlight the need to focus more on the process of implementing and evaluating this VPD's steps among different groups of leadership teams. Each school's leader demographics, instructional resources, and support levels could prove to be mitigating factors on long-term VPD effectiveness. Further research is crucial for drawing increasing attention to and further helping school leaders integrate the VPD elements that they deem relevant for their own campus.

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Beverly J. Irby, Regents Professor and Associate Dean for Academic Affairs, College of Education and Human Development at Texas A&M University (TAMU), is also the Marilyn Kent Byrne Endowed Chair for Student Success and the Director of the Educational Leadership Research Center. She has served as chair or as a committee member for several college and university committees. She has served on two faculty senates. She is the author of more than 200 refereed articles, chapters, books, and curricular materials for Spanish-speaking children. She is Editor of the Routledge: Taylor and Francis Mentoring and Tutoring: Partnership in Learning. She has sat on the Executive Boards of the international organization of the American Educational Research Association (AERA) Special Interests Groups: Research on the Superintendency; Learning and Teaching in Educational Leadership, and Mentorship and Mentoring Practices, the Texas Council of Women School Executives, and the National Council of Professor of Educational Administration (NCPEA). She serves the profession, for example, as an AERA Education Researcher journal reviewer and the National Association of Bilingual Education (NABE) Bilingual Research Journal Review Board. Her work includes areas of social responsibility, including the principalship, early learning, women's leadership, and English learners.

Roya Pashmforoosh is a Research Specialist at the Center for Research & Development in Dual Language and Literacy Acquisition (CRDLLA) and Education Leadership Research Center (ELRC) at Texas A&M University. In 2016, she was enrolled in the ESL Education Program, Department of Teaching, Learning and Culture (TLAC) as a visiting scholar. Roya earned her master's degree in Applied Linguistics from Sharif University of Technology. Her areas of interest focus on intercultural pragmatics, bilingual/ESL education, and also virtual mentoring and coaching. She has published papers in journals such as Language Testing (Sage), Language and Intercultural Communication (Routledge), and Pedagogies: An International Journal (Routledge).

Donna M. Druery (Ph.D.) is a May 2021 graduate of Texas A&M University, College Station, Tx in Educational Administration. Dr. Druery also holds a Bachelor's Degree in English, along with double minors in Speech Communication and Business Administration from Texas A&M University and a Master's Degree in Administration from Sam Houston University. Druery holds certifications in the areas of English Language Arts (6-12);, Administration; School Superintendent; and Non-Profit Management. Her research interests include the Equity and Sociology of Education; Educational Policy, Politics, and School Choice; and Urban Education and Equity. As a student, she has published over 15 journal articles and book chapters and has presented at approximately 40 conferences. She has held local and national leadership positions in educational organizations and has won numerous awards and travel grants. Dr. Druery is a member of the Phi Beta Honor Society for International Scholars and Pi Lambda Theta National Honor Society and is a Barbara L. Jackson Scholar alumni. She has served as both a Senior and Junior Graduate Representative in the American Educational Research Association (AERA). Druery is currently serving as a Component Leader with the Accelerated Preparation of Leaders for Underserved Schools (APLUS): Building Instructional Capacity to Impact Learners, a U.S. Department of Education SEED grant.