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Virtual professional development on conflict management for school leaders

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From 2017 until 2020, we held face-to-face professional development focused on enhancing instructional leadership for underserved schools at the campus level. We quickly determined in March 2020, based on the predicted situation of COVID-19, that we needed to change that venue to virtual professional development (VPD). The study was grounded in the theoretical base of adult learning theory and transformational learning since we were working with school leaders. The researchers used a mixed methods research design with a survey to examine to what extent school leaders perceived their engagement in a synchronous VPD webinar with facilitators increased their knowledge on the topic of conflict management. The findings showed that the participants perceived targeted VPD to have significantly increased their knowledge on conflict management. Additionally, the participating school leaders indicated a shift in their attitudes from negative to positive perceptions regarding conflict. The findings suggest that structured VPD for school leaders has the potential to advance school leaders' knowledge on conflict management.

KEYWORDS

virtual professional development, school leaders, conflict management, COVID-19, adult learning, transformational learning, critical dialogue, conflict resolution

Introduction

Project Accelerated Preparation of Leaders for Underserved Schools A-PLUS (Grant Award Number # U423A170053; Irby et al., 2017) is a federally-funded U.S. Department of Education grant that has been focused on enhancing instructional leadership for underserved schools in Texas. The overarching goal of the project was to prepare practicing principals and school leaders (campus leadership teams) for building instructional leadership capacity at the campus level. This PD for leaders had been planned for face-to-face (F2F) interactions. However, the research team determined in

March 2020, based on the predicted situation of COVID-19, that F2F PD needed to change to online or virtual PD (VPD). With the assistance of the grant's official partner, LogMeIn (now GoTo), our team was trained to produce a live webinar in conflict management.

Review of literature

Conflict management

Researchers have addressed concerns about national and international school leaders' lack of conflict management skills (Barnett et al., 2012; Üstüner and Kis, 2014; Saiti, 2015; Vestal and Torres, 2016; Brooks and Brooks, 2019; Vuyisile, 2019; Khanal and Ghimire, 2022). Conflict, according to Watson et al. (2017), is a disagreement between people with opposing needs, beliefs, values, and/or goals. Smith and Riley (2012) suggested school leaders require a delicate balancing of effective relational skills with effective leadership expertise. Further, the results of previous research studies on conflict management revealed that conflicts are neither good nor bad; they actually exist, and leaders need to learn how to address them in any organization (Watson et al., 2017). As suggested by Watson et al. (2017), not all conflicts are destructive, and some may lead to changes and bring new opportunities to resolve organizational problems. Additionally, Cohen (2015) determined that individuals must forgo the assumption that in order for one party to win, the other must lose. Known as a zero-sum mindset (Cohen, 2015), this outlook makes it almost impossible to resolve disputes and conflicts. Thus, conflicts, as unavoidable factors in any organization, need to be addressed effectively to achieve organizational success.

Ghavifekr et al. (2019) conducted a study to identify sources of conflict, including authority, lack of communication or rewards, and misallocation of funds and resources, to name only a few. Watson et al. (2017) identified other sources of conflicts in school settings such as miscommunications, resource scarcity, opposing personal values, and institutional changes. Additionally, Crossfield and Bourne (2018) found other interpersonal factors that lead to conflict such as managerial issues, work structure, cultural differences, and, above all, ethical concerns. Moreover, Ghaffar (2009) pointed out that conflicts occur with the juxtaposition of opposing values or when negative, emotional, or social feelings cause interpersonal conflicts in school. Conflict management skills and practices, such as social-emotional learning (Calkins et al., 2007; Freeman et al., 2014), interpersonal skills of listening (DiPerna and Elliott, 1999), acceptance of diversity (Pasi, 2001), and cooperative conflict management (Jones, 2004), have been extensively studied. Schlaerth et al. (2013) reported the findings of a meta-analysis examining the relationship between emotional intelligence (EI) and

constructive conflict management, and the moderating roles of leadership position and age. The results indicated that EI is positively associated with constructive conflict management, consequently developing effective leadership relationships.

It is especially noted that while not all conflicts are the same, neither are all conflicts equal. However, conflict can be linked to antagonistic interactions among individuals (Griffin et al., 2012), discrimination across race (Roberts et al., 2008; Watson et al., 2019), class (Weis, 2008; LaCour and Tissington, 2011), gender (Blackburn et al., 2006; Rahim and Katz, 2020), ability status (Flynt and Morton, 2004), bullying (Brewer et al., 2018; Juvonen and Schacter, 2020) and religion (Zine, 2001). In some cases, schools have failed to acknowledge and address these conflicts resulting in dire consequences (Griffin et al., 2012). One definition of conflict is a disagreement on a course of action to be taken. Since there are inherent disagreements, conflict seems inevitable between two or more individuals. Additionally, as schools closed during COVID-19, unanticipated crisis (e.g., school shootings, hurricanes, and wildfires), racial and social injustices became part of the national and international news [e.g., George Floyd, the border wall, criminal policies of (in)equity, (in)equality, and (in)justice], in addition to on-going technology issues in schools, all added emotional weight and turmoil to the public psyche, regardless of which side of the issues people espoused (Watson et al., 2019; Algar and Feis, 2020; Goldstein, 2020; Heitner, 2020; Hodges et al., 2020; Wilkerson, 2020; Reyes-Guerra et al., 2021; Virella and Cobb, 2021). Thus, conflicts will not cease to exist, however there are skills that can and should be taught via professional development that can provide opportunities to manage conflict, resulting in productive and constructive solutions (Coldwell et al., 2012; Jacques, 2012; Cohen et al., 2017; Watson et al., 2017; Hemmer and Elliff, 2019; Scott et al., 2021; Urick et al., 2021). As schools begin to shutter and close in March 2020, school leaders were tasked with transitioning quickly to online platforms. This new normal also increased conflict and stress for an already burdened educational system and for a network of educators (Jacques, 2012; Cohen et al., 2017; Urick et al., 2021).

Professional development on conflict management

One of the important aspects of school leadership is conflict management. Conflict is an unavoidable and significant factor in school settings and effectively managing conflict is crucial to school leaders' success (Brooks, 2015). The prevalence of conflict in school organizations highlights the need for providing training in conflict management, yet the literature about how to prepare and train school leaders for addressing unavoidable school conflicts still remains limited. Watson et al. (2017) pointed out that it is important for any organization to include conflict management in their PD programs, as they suggested

that conflict management strategies make an organization effective. Other researchers (i.e., Maier et al., 2018; Baraldi, 2019; Herman, 2019) mainly focused on conflict management in the classroom rather than at the school level in PD. These researchers discussed conflicts based on student-teacher engagement within the classrooms and possible ways conflicts can be resolved in that setting. Unresolved conflicts result in low performance and a negative school climate (Snodgrass and Blunt, 2009). In order to improve school performance, school leaders are required to enhance their conflict resolution skills. Thus, leadership development, as Irby (2012) suggested, is an essential tool to help school leaders gain knowledge and improve the skills necessary for their job performance and success, and such skills include those of conflict management or resolution.

Although numerous leadership development programs (Fiutak, 2000; Watson et al., 2017, 2018) have been created in schools, the inclusion of conflict management into PD for school leaders has still remained underexplored as a research topic. Watson et al. (2018) studied the inclusion of conflict management in schools. Watson et al. (2018) used a model in their PD program to support individuals, including the leadership team and staff, in honing their conflict management skills. It was determined that leaders developed effective conflict management skills through deliberate attempts to engage in and embrace conflict (Watson et al., 2018). White et al. (2013) used a core team (CT) model to assist schools' leadership teams in applying collaborative conflict resolution approaches and developing conflict resolution skills and developed school leaders' conflict management skills through a collaborative conflict resolution approach. The approach taken involved a professional learning CT model with staff in the school attending four full-day workshops over a 1-year period. Professional learning teams were focused on encouraging an active interchange of ideas and involvement of leaders within a CT model to overcome the problems of initiatives failing. The results were that schools were more likely to apply collaborative conflict management resolution if they had more training. White et al. suggested that more research is needed to determine the most effective method for providing professional development on conflict resolution.

Feirsen and Weitzman (2021) noted that school leaders spent between 20 and 40% of their time dealing with various conflicts. Although many PD programs have been developed in schools and universities, a few researchers (i.e., Fiutak, 2000; Watson et al., 2017, 2018) have studied the topic of conflict management in the professional development of school leaders. Developing conflict management skills would be useful for school leaders (Msila, 2011; Vestal and Torres, 2016). School leaders fulfilling organizational goals, as Vestal and Torres (2016) noted, require a strong task-oriented strategy in managerial approach to focus on: (a) climate and culture, (b) earn trust and build rapport among teachers, and (c) retain support in a diverse and pluralistic organization. Hillman (2014)

suggested that school leaders must build the capacity to resolve conflict to be more aware and sensitive to differences in value and acceptable norms in the workplace between generation groupings. Other researchers pointed to the need for school leaders to foster awareness of the emotional aspects associated with conflict (Hopkins and Yonker, 2015). This is especially true more broadly for school leadership teams, in which effective conflict management has been shown to lead to more innovative and successful organizations (Beer et al., 2016; Watson et al., 2017).

Virtual professional development for school leaders

Online learning opportunities have gained popularity with PD or courses, specifically on conflict management. Some examples include Online Conflict Management Courses by Cornell University, *Coursera* Top Conflict Management Courses, UC Davis, *edX* Conflict Resolution Courses, and Abilene Christian University (ACU) Certificate in Conflict Management, Education Leadership Research Center Texas A&M University Top-Class Educational Institutes.

In reviewing general online PD, advantages emerged in the use of online methods of delivery with the addition of interactive learning through online communities of practice (Jesionkowska, 2018). Abedini et al. (2021) systematically reviewed adult learning in online communities of practice and determined that adult learners are "independent, self-directed, experience-centered and problem-centered, self-motivated and goal-oriented, with the main prospect of achieving a relevant professional outcome" (para. 45). While empirical research on online professional development for principals has remained unaddressed, evidence has emphasized investing in opportunities for online learning (Abedini et al., 2021). State education agencies and school districts utilize online PD to offer adult learners more interactive learning opportunities to facilitate interactions through online technologies such as group discussion, online discussion, and online learning communities (Sadeghi and Kardan, 2015). Tong et al. (2015) indicated that there are several ways regarding the delivery methods for VPD, including: (a) synchronous with facilitator, (b) asynchronous with facilitator, and (c) asynchronous without facilitator.

Vai and Sosulski (2015) developed the following standards for online learning to support consistency and learning outcomes, including: (a) ease of communication, (b) pedagogical and organizational design, (c) visual design, (d) engaged learning, (e) learning interactions and community, (f) assessment and evaluation, and (g) ease of access. Additionally, certain VPD features have been linked to participants' satisfaction, including: (a) provision of learner feedback (Reeves and Pedulla, 2011), (b) learner interaction (Norton and Hathaway, 2008; Reeves and Pedulla, 2011; Russell, 2020),

(c) course organization (Gacs et al., 2020), and (d) user participation in online communities (Malinen, 2015). Etchells et al. (2020) noted that in their study that over 67% of participants recommended VPD with online coaches in a virtual professional learning community to other principals.

Theoretical framework of the virtual professional development

In this study, theoretical assumptions from the andragogy theory of adult learning were applied (Knowles et al., 2015) to the VPD on conflict management. Knowles (1980) contended that andragogy is defined by the learning situation rather than by the learner, and Knowles et al. (2015) highlighted learning environments that contribute to advancing collaboration and engagement of participating adults, which accordingly was theorized to improve the intended learning outcomes. In this study, the researchers aligned the andragogy theory with their VPD; as such, they provided collaborations among participants in synchronous VPD and elicited real-life examples in which participants discussed either in chat, breakouts, or open mic their related experiences in conflict management. Supporting andragogical collaborative learning environments as applied to VPD, the research team connected the benefits of developing and designing engagement activities for participants, including videos, examples, discussions, and concepts.

This VPD was also based on Merriam's and Baumgartner's (2020) viewpoints that adult transformational learning can be a byproduct of cognitive engagement for individuals that support integration of knowledge and skills learned where critical reflection is brought about by an experiential sharing of learning, and connected to this study, specifically, it is the learning about conflict management during the VPD. Further, Mezirow (2000) envisioned transformational learning as how we know, not as what we know; thus, the research team theorized that collaborative learning engagement in VPD is needed in an online structure so that participants can reflect together and come to a point of *how* they know. This VPD was interactive with the facilitator engaging participants to collaboratively practice the skills learned, so that they could experience transformational learning. Specifically, the VPD program was designed for participants to go beyond an intensive focus on simply being instructed on conflict management, and the learning situation was reoriented to transformational learning in which the research team (a) provided information, discussion, practice, and reflection on strategies necessary for leaders to apply conflict management for navigating during a crisis or turbulent times, (b) offered time for sharing of how to return to normal and reach school community restoration, and (c) promoted the valuing of opportunities to manage conflicts for productive and constructive solutions.

Research objective and question

The VPD offered school leaders information on how to manage conflicts with mini-workshops on how to handle conflict with critical dialogues, resilience, improvement of communication skills, emotional intelligence, and self-awareness via assessing personal conflict management behaviors and reflection of how individuals respond. Such conflict management strategies or approaches used in the VPD and noted by Watson et al. (2017) are avoidance, compromise, collaboration, competing, and accommodating. Watson et al. used the Thomas-Kilmann Conflict Mode instrument to assess an individual's behavior in conflict situations. In such situations, the two basic dimensions that Watson et al. used to describe a person's behavior are: (a) assertiveness, which is the extent to which the individual attempts to satisfy one's own concerns and (b) cooperativeness, which is the extent to which the individual attempts to satisfy the other person's concerns. Per Watson et al., avoidance is low assertiveness and low cooperation. Examples of avoiding skills include ability to withdraw, sidestepping, sense of timing, and ability to leave things unresolved. Compromise is defined as moderately assertive and moderately cooperative, and the skills are negotiating, finding a middle ground, making concessions, and assessing value. Collaboration is high assertiveness and high cooperation. Collaboration skills include the ability to listen, non-threatening confrontation, analyzing input, and identifying concerns. Competing is high assertiveness and low cooperation with competing skills including ability to argue or debate, use rank or influence, asserting one's opinions and feelings, standing one's ground, and stating one's position clearly. Accommodating is low assertiveness and high cooperation. Accommodating skills are forgoing one's desires, selflessness, obeying orders, and ability to yield.

The purpose of this study was to determine how practicing school leaders perceived the effectiveness of the VPD on their knowledge gains related to conflict management. The research team examined the perceived effectiveness of the VPD on conflict management with a mixed methods research design using a survey. To guide this study, the following research question was addressed: How did practicing school leaders perceive the effectiveness of the VPD on their knowledge gains related to conflict management?

Materials and methods

This VPD was related to conflict management for school leaders and entitled *Engaging in Conflict Management for School Leaders in Diverse Schools* and was led by an expert in mediation and conflict management. By March of 2020, planning and preparation for the Summer Leadership Institutes had already been underway for months. Then COVID-19

arrived, and all planning for a F2F event ground to a halt. This global pandemic forced many educators to adjust their way of delivering instruction and assessing students' knowledge. The pandemic increased the pressure on teacher leaders, principals, and superintendents to adjust the formal educational setting to an online platform. School leaders had previously registered to attend the Summer Leadership Institute prior to the COVID-19 school shut-down. In this synchronous webinar with facilitators, the schedule and requirements were adapted from registration as school teams to registration as individual school leaders, which opened opportunities for a wider participation across geographic locations.

Description of intervention

The VPD was offered via GoToWebinar, an online video meeting platform. The school leaders participated in VPD with synchronous webinars facilitators. The VPD lasted for 3 days, June 10–12, 2020, which was the week after schools were dismissed for summer and immediately after the shut-down of schools due to COVID-19.

Knowing that the 3 days of VPD would be tedious and knowing that teachers had just come out of their own teaching online from mid-March when schools shut down and went virtual, the research team determined that it would be helpful to include a physical health expert who also participated in the VPD and conducted periodic stretch breaks and movement activities and tips for staying healthy during this time of the pandemic. Options were discussed with the mental health expert who was to conduct the main content of the VPD, and she considered this to be a very important component of conflict management. The VPD topics were centered on attending to aspects of conflict management which occurs in daily lives of teachers and administrators, and had become even more challenging during the initial COVID-19 days (Urick et al., 2021). Overall, the VPD on conflict management helped participants address different types of conflicts, including individual, interpersonal, and institutional conflicts, in order to create safe and welcoming communities. Specifically, during the 3-day Conflict Management VPD, the following interactive topics were covered: (a) How School Administrators Engage in Critical Dialogue for Conflict Management, (b) Skill Set to Lead/Catalyze Culturally Responsive Instructional Changes Which May Produce Conflicts, (c) The Resilience of Champions: Secret Habits of Highly Resilient Individuals and Organizations, (d) Enhancing Communications Skills Set: Self and Others Facilitation, (e) Building a Conflict Management Skill Set: Conflict Assessment and Critical Dialogue Practice Discussion, (f) Emotional Intelligence and Conflict Management, (g) Effective Communication and Self-Awareness for a Positive School Climate, and (h) Engaging in Conflict Management for School Enhancement. Participants

had pre-determined readings and reflections to complete as homework for the VPD.

Design of the study

A mixed-methods research design was used with a survey for data collection. Plano Clark and Ivankova (2016) indicated that mixed methods research is a "a process of research when researchers integrate quantitative methods of data collection and analysis and qualitative methods of data collection and analysis to understand a research problem" (p. 59); furthermore, Plano Clark and Badice (2010) and DiLoreto and Gaines (2016) noted that a survey can be used to gather mixed types of data (quantitative or more qualitative). The survey utilized in this study offered closed-ended pre-post questions on Likert scale that aided us to determine the extent of perceived knowledge gained during the 3-day conflict management VPD, and thus, produced quantitative data. At the end of the survey, there were reflective open-ended questions in which participants were asked their leadership knowledge and skills about conflict management, their perceived conflict management styles, the effective aspects of the VPD, and the ways the VPD on conflict management prepared them for the professional career.

The research team explored the data, as recommended by DiLoreto and Gaines (2016), by (a) treating the methods as fundamentally different, (b) exploring the methodological rigor of each quantitative and qualitative phase, and (c) exploring the quantitative and qualitative data comparability. DiLorento and Gaines suggested a fourth type of exploration of the data which was to collect additional data and make more comparisons; however, the research team did not engage in that procedure. DiLorento and Gaines suggested that researchers could select any two of those procedural explorations; thus, the research team explored the methodological rigor of each quantitative and qualitative phase as a means to ensure the depth and precision of the data for responding to the research question.

Participants

Ninety-four school leaders participated in the VPD titled, *Engaging in Conflict Management for School Leaders in Diverse Schools*. The VPD, as an online synchronous webinar with facilitators, was provided for participants from schools characterized as high-needs campuses with high populations of English Learners (ELs) and economically challenged students (ECs). The majority of participants were diverse females (85%). Participants self-identified as White (37%), Hispanic (39%), African American (21%), and Asian (3%). Their years of experience as administrators ranged from fewer than 5 years (61%), 6–10 years (23%), to more than 11 years (16%). All participants completed a pre-survey and the post-survey Likert

scale questions. However, for the post-survey with the open-ended questions, only 54 of the participants completed these questions. Those participants who responded to the open-ended questions were 48 females (89%). The ethnicity of this segment of participant completers was: White (39%), Hispanic (31%), African American (28%), and Asian (2%). Their years of experience as administrators ranged from fewer than 5 years (63%), 6–10 years (13%), to more than 11 years (24%). As a subset of the participants responding, the participants' demographics who answered the reflective open-ended questions mirrored the entire group of the participants.

Instruments

The instruments were developed with the assistance of a mental health expert who delivered the VPD. The survey questions were curriculum-based which were related to content of the VPD on conflict management. In this way, we could assess the knowledge gains of the participants within the conflict management VPD. The VPD itself was based on the theoretical framework of andragogy. However, the curriculum-based survey was based upon the current review literature related to conflict management for school leaders. Additionally, the mental health expert assisted us with the development of adult education related to pre- and post-surveys that were utilized to measure the increase in leadership knowledge and conflict management skills.

The steps the research team took in pre- and post- survey instrument development were as follows: (a) had a conversation with a mental health expert who has books and papers on the topic of conflict management skills, (b) discussed related conflict management skills from the literature and the Thomas-Kilmann Conflict Mode instrument, (c) determined sessions with a conflict management VPD, (d) determined with a health expert the key concepts that were important in the knowledge that participants gained during the sessions, and (e) developed the surveys items for quantitative data and the reflective open-ended questions. Finally, the face validity of the instrument was conducted with three former school leaders.

The survey consisted of three sections regarding conflict management in the pre- and post-surveys, including multiple-selection questions, Likert scale questions, and open-ended questions (for post-survey only). Participants were asked to select keywords and explain concepts to demonstrate their understanding of managing conflicts in school settings. In order to evaluate the development of leadership knowledge and conflict management skills, the surveys were provided before and after the VPD. The key areas of literature that inform this VPD comprise conflict management (Watson et al., 2019) and reflective dialogue (Lambert, 2003; Garvey Berger, 2012).

The pre- and post-surveys had the following sections. The first section was about participant demographic information. In the post-survey, this section had 12 items on a 5-point

Likert scale which measured the participants' evaluation of the overall effectiveness of the VPD. The second section had a multiple selection list that asked participants to select five words they closely associated with the word conflict. The third section had 8 items on a 5-point Likert scale. The survey items of this section were about the participants' ratings of their level of confidence regarding (a) the role of emotional intelligence in effective school leadership, (b) knowledge of critical dialogue, (c) knowledge of culturally responsive interventions and decisions, (d) cultural tensions that arise within the school, and (e) knowledge regarding outcomes that are associated with school climate. And the post-survey included a fourth section with open-ended questions. The open-ended questions in the post-survey were about: (a) the knowledge and skills about conflict management they learned in the VPD, (b) the conflict management style they most often use, and (c) the ways they were prepared for their professional path as a result of their participation in the VPD (see **Supplementary Appendix A** and **Appendix B** for pre- and post-surveys).

Data collection procedure

Data sources for this VPD included school leaders' perceptions of the effectiveness of VPD via pre-and post-surveys and responses to reflective questions utilizing the survey design. Participating school leaders completed pre- and post-surveys related to topics of the VSLI on conflict management. For this survey study, since the research questions addressed the difference in responses over the course of the VPD, only participants who completed both pre- and post-phases of the surveys were included in the analysis. Per Institutional Review Board (IRB), the research team sent the pre-survey 2 days prior to the beginning of the VPD and then followed up with the post-surveys after participants completed the VPD.

To measure the increase in leadership knowledge and skills after participating in the VPD, the practicing school leaders completed pre-and post-surveys related to VPD topics on *Conflict Management for Improving Schools*, which asked them to report on their understanding of this VPD's effectiveness. For the pre-post survey, only participants who completed both phases of the survey were included in the analysis to examine participants' professional learning and growth during the webinar.

Data analysis

Descriptive statistics including measures of central tendency, variability, quartile stratifications, and *t*-tests were conducted using SPSS version 25. The results from these analyses provided profiles of the participants and shaped the explanatory qualitative strand. Mean scores were calculated

based on the main subscale indicators, generating more continuous data and allowing for further statistical analyses (Norman, 2010). The reliability of the pre-survey internal consistency was also calculated based on Cronbach's alpha, which was reported as $a = 0.78$. For the post-survey, Cronbach's alpha was reported as $a = 0.90$. According to Pallant (2010), reliability coefficients above 0.70 are acceptable. The effect sizes are calculated to address the magnitude of the effect of the VPD (Ferguson, 2016). Specifically, we applied paired t-tests on 5-Likert-scale items to examine mean differences on continuous variables between two conditions. For example, participants were asked to evaluate certain statements (ranging from "1 = strongly disagree" to "5 = strongly agree") in managing conflicts. The paired samples t-tests were conducted to determine if there were mean differences before and after attending the webinar.

The research team coded related words associated with conflict as 1 and non-related words as 0 to investigate possible differences between pre- and post-tests on their understanding of conflict management. Given that variables are dichotomous, McNemar's chi-square test, which is utilized on paired nominal data, was performed on the associative words. The research team conducted a series of paired t-tests on the participants' perceived effectiveness of the VPD. Knowing that the number of tests may give rise to the inflation of a Type I error, the research team utilized a more stringent significance level of 0.01 instead of 0.05.

For the qualitative post-survey data, the constant comparative analysis technique from Corbin and Strauss (2008) was utilized to examine data. In the first stage of analysis, two independent coders used open coding to look for emerging themes. In the second stage, axial coding was used to collapse themes generated from the open coding process. The next step was to compare the qualitative results with the survey outcome and to identify key elements that emerged in the participants' responses and identify areas where sources differ. The data were organized into a matrix using a systematic coding method (Glaser and Strauss, 2017) to display the emerging patterns and themes (Patton, 2002). A word cloud visual was used to display the frequency of key terms emerging from participants' reflective responses regarding the effective aspects of the training they received. The size of the circle represents the size of each word proportional to its frequency in the cloud. This technique is very useful to display high- or low-frequency words while analyzing unstructured data (Jayashankar and Sridaran, 2017).

Credibility and trustworthiness of the qualitative component of the study

The researchers used low inference descriptors, direct quotes from participants' reflective responses related to their experiences of their VPD. The research team also used investigator triangulation (Burke-Johnson, 1997), to cross-check emerging data, explain key patterns and elements, and identify points of convergence and divergence both within and among sources (Creswell and Plano Clark, 2017). The multiple researchers discussed, collected, and interpreted the data. The findings of this study were corroborated using an iterative process throughout data coding to promote understanding. Two independent coders used open coding to look for emerging themes. The next step was for the investigators to compare the qualitative results with the survey outcome and to identify key elements that emerged in the participants' responses and identify areas where sources differ. The data were organized into a matrix using a systematic coding method (Glaser and Strauss, 2017) to display the emerging patterns and themes (Patton, 2002).

Results

The results were presented by quantitative analyses first and then by qualitative analyses. The research team addressed how practicing school leaders perceived the effectiveness of the VPD on their professional learning, with an emphasis on strategies in conflict management.

Quantitative findings

The overall effectiveness of the virtual professional development

The overall effectiveness of the VPD was first explored with descriptive statistics (see Table 1). The average ratings of the VPD by participants ranged from 4.36 to 4.68. Approximately 85.1% of school leaders considered that the VPD helped them to reflect on their practice and how to improve it ($M = 4.68$, $SD = 0.62$). Above 80% of the participants believed that the topics covered in the VPD helped them see another point of view of how work is performed and/or situations that occur in their work. The effectiveness of the VPD was still confirmed by participants as the participating school leaders agreed that the VPD helped them to expand their ideas and develop their skills related to their work ($M = 4.68$, $SD = 0.69$). As displayed in Table 1, 88.8% of the participants reported that the VPD helped them better understand how to promote and maintain a supportive learning environment. More than 80% of them were willing to apply the knowledge/skills they learned from the VPD to their work.

Perceived effectiveness of the virtual professional development related to conflict management

As displayed in Table 2, the mean scores in participants' professional learning ranged from 3 to 3.50 before the VPD.

TABLE 1 Descriptive statistics of the overall effectiveness of the VPD.

	M	SD	Agree (%)	Strongly agree (%)
1. The VPD was informative and provided a coherent learning experience.	4.36	0.49	59.3	33.3
2. The VPD provided opportunities for self-assessment as a leader.	4.48	0.510	48.1	44.4
3. The VPD helped me to reflect on my practice and how to improve it.	4.68	0.62	37	48.1
4. The content of the VPD was very useful for me to enhance my leadership competencies.	4.60	0.57	40.7	48.1
5. The topics covered in the VPD helped me see another point of view of how work is performed and/or situations that occur in my work.	4.68	0.69	40.7	40.7
6. The VPD has engaged me in self-improvement and continuous learning.	4.68	0.62	37	48.1
7. The VPD has inspired me to develop relationships with others inside and outside the school.	4.48	0.58	51.9	37
8. I feel I have a stronger foundation for solving the problems I'm facing in my work.	4.64	0.70	44.4	37
9. The VPD helped me better understand some aspects of my work.	4.48	0.58	51.9	37
10. The VPD helped me to expand my ideas, generate new ideas and/or develop skills related to my work.	4.68	0.69	40.7	40.7
11. The VPD helped me better understand how to promote and maintain a supportive learning environment.	4.56	0.58	44.4	44.4
12. I look forward to applying the knowledge/skills that I learned from the VPD to my work.	4.60	0.64	44.4	40.7

The participant's perceptions of their knowledge and skills increased after the VPD, ranging from 4 to 4.40. In addition to the significant increase in their perceived leadership growth and learning, the participants were also more likely to rate themselves as competent in their leadership competency after completing the VPD. The results of t-tests indicated the significant differences in the participants' professional learning (i.e., the knowledge increase in leadership practices related to conflict management). The findings showed that the participants significantly perceived VPD to have increased their knowledge and skills (practices) on a Likert Scale ranging from 1 to 5 in addressing: (a) emotional intelligence in effective school leadership with a pre-mean of 3.2 to a post-mean of 4.3, (b) knowledge of critical dialogue with a pre-mean of 3.4 to a post-mean of 4.4, (c) culturally responsive interventions with a pre-mean of 3.5 to a post-mean of 4.2, (d) culturally responsive decisions with a pre-mean of 3.5 to a post-mean of 4.3, (e) cultural tensions with a pre-mean of 3 to a post-mean of 4, (f) school climate with a pre-mean of 3.3 to a post-mean of 4.2, (g) critical dialogue management in school settings with a pre-mean of 3.1 to a post-mean of 4.3, and (h) difficult dialogue on bullying and/or peer-directed aggression with a pre-mean of 3.5 to a post-mean of 4.4.

Conflict management strategies

The participants were required to take surveys before and after participating in the VPD to evaluate their perceived knowledge and skills gained on conflict management. Specifically, the participants were expected to select certain strategies, which are relevant to the mentioned knowledge or skills related to conflict management.

Prior to the VPD, the researchers asked participants to select five words from among the word list in the survey (see Supplementary Appendix A and Appendix B for pre- and post-surveys) that were closely associated with "conflict." The results showed that the top-five conflict management words selected by participating school leaders before the VPD were "Fight," "Destructive," "Discussion," "Viewpoints," and "Resistance." Results from McNemar's tests (see Table 3) indicated that there were statistically significant differences between pre- and post-surveys on "Fight," "Destructive" and "Resistance." Specifically, the number of participants who selected these words before attending the VPD were, 49, 39, and 62, respectively. However, the number decreased significantly to 7, 12, and 4 after participating in the VPD.

In contrast, the top five conflict management words selected by participants after the VPD were "Engage," "Listener," "Discussion," "Viewpoints," and "Dialogue." Results from McNemar's chi-square test (see Table 4) identified significant differences on "Engage," "Listener," and "Dialogue." An increasing number of participants selected these three associative words (Engage, $n = 36$; Listener, $n = 42$; and Dialogue, $n = 42$) in the post-survey.

TABLE 2 Participants' perceptions of the effectiveness of the VPD related to conflict management.

	M_Pre	SD_Pre	M_Post	SD_Post	t	P	Cohen's d
1. I am confident in my general knowledge regarding the role of Emotional Intelligence in effective school leadership and management.	3.2	0.67	4.3	1.35	3.97	<0.05	1.69
2. I am confident in my knowledge regarding critical dialogue.	3.4	1.35	4.4	0.70	2.02	<0.05	0.93
3. I am confident in my knowledge regarding culturally responsive interventions.	3.5	0.71	4.2	0.63	3.28	<0.05	1.04
4. I am confident in making culturally responsive decisions.	3.5	0.85	4.3	0.67	3.21	<0.05	1.05
5. I know how to address cultural tensions that arise within the school.	3	0.67	4	0.82	3	<0.05	1.34
6. I am confident in my knowledge regarding outcomes that are associated with school climate.	3.3	0.67	4.2	0.79	2.59	<0.05	1.23
7. I know how to facilitate critical dialogue in school settings.	3.1	1.20	4.3	0.67	2.34	<0.05	1.23
8. I know how to engage in difficult dialogue on bullying and/or peer-directed aggressions.	3.5	0.85	4.4	0.70	2.59	<0.05	1.16

Qualitative findings

The participant's responses to the open-ended reflective questions regarding the effect of the conflict management VPD on their professional learning revolved around: (a) the strategies they used for managing conflicts (e.g., collaboration and active listening), (b) the effective aspects of the VPD related to their professional learning, and (c) effective communication and self-awareness for conflict management.

The strategies the participants used for managing conflicts

The findings of the open-ended reflective questions indicated that school leaders held different perceptions regarding their conflict management strategies. Before attending the VPD, the participants most frequently associated conflicts with negative terms such as "fight" and "destructive." After

TABLE 3 Differences between the associative conflict management words in pre-survey.

	Fight	Destructive	Discussion	Viewpoints	Resistance
Chi-Square	30.02	13.26	0.08	0.57	49.23
Asymp.sig	<0.001	<0.001	0.779	0.451	<0.001

TABLE 4 Differences between the associative conflict management words in post-survey.

	Engage	Listener	Discussion	Viewpoints	Dialogue
Chi-Square	11.02	21.78	0.08	0.57	20.08
Asymp.sig	0.001	<0.001	0.779	0.451	<0.001

the VPD, conflict was largely associated with "discussion" and "dialogue." Similarly, in defining strategies for managing conflicts after the VPD, the participants were most likely to choose measures such as "collaboration," "engagement," and "active listening," while a large number of them chose "resistance" and "avoidance" before attending the VPD.

Some participants reported that leadership knowledge, especially conflict management, acquired through the VPD was highly relevant to their role as school leaders. One of the participants stated:

> "The core concepts of Conflict Management introduced in the training are very relevant to my work as an Assistant Principal. I now feel that I have the more specific strategies available to me to solve many conflicts happening on the campus" [P10].

The effective aspects of the virtual professional development

The participants also reported the positive effect of the VPD on motivating them for further and ongoing learning regarding school leadership and for sharing new knowledge with colleagues. One participant stated:

> "I would like to take this training as an opportunity for me to set up my future professional development goals and plan for continuing to address my own learning" [P25].

Figure 1 indicates the participants' perceptions of the effective aspects of the conflict management VPD on their professional learning.

The two major effective aspects of the VPD were found to be: (a) Conflict Resolution and (b) Critical Dialogues. Conflict

resolution, as one of the effective aspects of the VPD, helped participants to gain empathy using active listening and handle unresolved conflicts via reflection. In addition, in this VPD, the participants were provided with a learning opportunity to embrace diversity of perspectives and resolve conflicts with improvement of communication skills. Critical dialogues, as the second most effective aspect of the VPD, helped the participants to manage conflicts through establishing a collaborative learning situation, sharing their narratives, and handling conflicts with critical dialogues and resilience.

Effective communication and self-awareness for conflict management

Additionally, the participants' attitudes regarding the importance of conflict management to a successful organization has changed significantly after the VPD. Many of the participants thought the VPD was "Effective," "Friendly," "Engaging," "Helpful," "Purpose Achieved" and they were willing to recommend the VPD to others and to attend future programs of this type. One of the participants highlighted the role of effective communication to tackle conflicts. He went on further and added:

> *If conflicts are resolved with effective communication, the result can be positive, promoting good relationships.*

In many cases, it is not the conflict that is the root of the problem itself; however, the participants go about trying to resolve their conflict as a result of this VPD. One of the participants stated:

> *The problem is that communication is harmed even further by ignoring the conflicts or trying to solve them. This is where conflict resolution comes into play.*

This VPD provided the participants with a basic understanding of the nature of conflict, the dynamics of power and influence that operate in conflict, and the role of effective communication and self-awareness in how educators see and respond to conflict. With effective communication and implementation of conflict resolution techniques and strategies, the participants learned how to solve their interpersonal and organizational conflicts. In addition, a participant commented:

> *I'm better equipped to manage and de-escalate conflicts that arise in my classroom after the professional development program.*

Discussion

Via a mixed methods research design using a survey, the research team examined the perceived effectiveness of the VPD on conflict management for school leaders. The study was grounded in the theoretical base of adult learning theory. Particularly, the foundational theories of adult learning

FIGURE 1
Participants' perceptions of the effective aspects of VPD on conflict management.
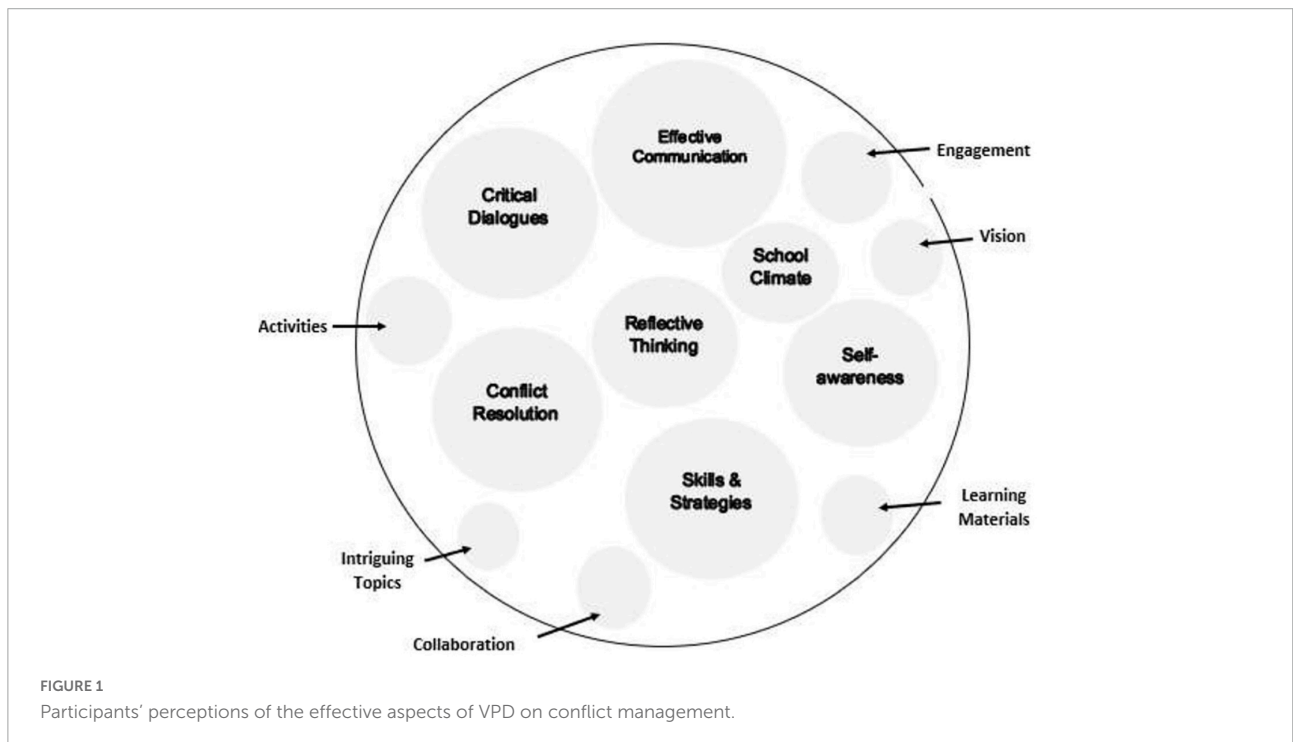
as andragogy and transformational learning were used. The research team established a learning situation or environment in which there were opportunities for participants to collaborate synchronously within the VPD. Transformational learning was accomplished as participants came to assess their own personal conflict management styles as to how they know themselves. They further reflected on how to use what they learned in addressing conflict in schools.

The quantitative findings showed that the participating school leaders perceived VPD to have significantly increased their knowledge on conflict management as they were introduced to and engaged in the topics of: (a) emotional intelligence in effective school leadership, (b) knowledge of critical dialogue, (c) culturally responsive interventions, (d) culturally responsive decisions, (e) cultural tensions, (f) school climate, (g) critical dialogue management in school settings, and (h) difficult dialogue on bullying and/or peer-directed aggression. The research team found that participants, upon the completion of the VPD, shifted their associative words about conflict from a negative to a positive concept of conflict, and they indicated their strategies for dealing with conflicts shifted from avoidance to more proactive and cooperative strategies.

The qualitative findings indicated that the participants (school leaders) perceived VPD positively in their professional learning related to conflict management. They indicated a shift in their attitudes toward more positive perceptions regarding conflicts emerging in their daily work. The majority of school leaders who answered the reflective open-ended questions indicated that the VPD on conflict management influenced their development as school leaders and increased a desire to use the conflict management strategies learned. Participants also indicated that they became more knowledgeable in identifying the crucial skills of conflict management, specifically the skills of cooperation, communication, and the understanding of conflict triggers for determining the most appropriate approaches to solve conflicts. Although there is no one rule in choosing the right strategies for dealing with conflicts in schools, Watson et al. (2017) indicated that mutual understandings of conflict defined, enhanced communication skills, self-awareness in terms of handling conflicts, and critical dialogue and conflict resolution techniques are needed as well.

Shoho and Barnett (2010) furthered the concept that conflict management was among the skills for which aspiring principals felt they were least prepared. Similarly, Barnett et al. (2012) suggested that leadership PD programs should assist novice leaders or assistant principals to develop their personal skills, including self-awareness, emotional intelligence for conflict management, and conflict resolution skills for school enhancement. They noted that oftentimes, instead of spending time on instructional leadership, these new leaders are spending their time dealing with conflicts. Our findings support the earlier findings of Barnett et al. (2012) in that the majority of our participants mirror their participants. The participants were

predominantly female novice leaders from diverse racial/ethnic backgrounds. Based on the results of the study, the research team determined that the topics included in the VPD provided were appropriate for increasing the participants' confidence in the same areas of knowledge of conflict management, emotional intelligence, and self-awareness as were suggested by Barnett et al. (2012).

Implications

There are three implications related to the findings of this study: (a) the theoretical underpinnings and structure of VPD delivery, (b) topics for inclusion for a perceived effective VPD for conflict management, and (c) considerations for providers of PD and VPD.

Theoretical underpinnings and structure of virtual professional development delivery

To improve school leadership, especially in conflict management, a provider of VPD should design a program based on adult learning theory and transformational learning that creates a learning situation or environment that is synchronous and which is focused on continuous engagement opportunities for collaboration, discussion, reflection, and practice. Structurally, the researchers recommend that an expert in conflict management strategies be engaged in the planning and implementation of the VPD on conflict management. Additionally, the researchers recommend that the VPD, if it is for a full day or as we had, 3 days, be clustered by hour-long sessions that are interactive. The researchers also encourage wellness breaks with an exercise health expert for a day-long VPD delivery.

Topics for inclusion for a perceived effective virtual professional development on conflict management

The research team examined to what extent school leaders perceived their engagement in a synchronous VPD webinar which was intended to deepen their knowledge to engage in effective conflict management. The participants in this study were predominantly novice diverse female school leaders (61% who responded to the pre-survey/63% who responded to the open-ended qualitative post-survey component had less than 5 years of principal experience); this may be practically significant information for PD planners to consider related to the topics on conflict management. The leaders in our study suggested that they perceived that the VPD

was on target for deepening their understanding, particularly for the skills in conflict resolution and critical dialogues. A discussion of what conflict is basic for a VPD of this nature, and strategies for handling conflict are topics for inclusion. The participants noted negative connotations of conflict or conflict management strategies prior to the VPD (fight, destructive, resistance, avoidance), yet afterward, they selected positive words on conflict or conflict management strategies (discussion, dialogue, collaboration, engagement). Based on the participants' responses, the researchers encourage the topics of a VPD in conflict management and add that these were perceived as effective for school leaders: (a) How School Administrators Engage in Critical Dialogue for Conflict Management, (b) Skill Set to Lead/Catalyze Culturally Responsive Instructional Changes Which May Produce Conflicts (inclusive of bullying or peer-directed aggressions), (c) The Resilience of Champions: Secret Habits of Highly Resilient Individuals and Organizations, (d) Enhancing Communications Skills Set: Self and Others Facilitation, (e) Building a Conflict Management Skill Set: Conflict Assessment and Critical Dialogue Practice Discussion, (f) Emotional Intelligence and Conflict Management, (g) Effective Communication and Self-Awareness for a Positive School Climate, and (h) Engaging in Conflict Management for School Enhancement. Such topics may serve to provide leadership development in more targeted, task-specific, VPD for building principals' leadership capacity in conflict management for daily operations and as emergency situations like COVID-19 arise.

Considerations for providers of PD and virtual professional development

This study has implications for providers of PD and VPD for school leaders. Specifically, as VPD programs are developed to help school leaders, particularly novice principals, manage conflicts, it is important that the PD developers provide time for online facilitators to lay the foundations of definitions of conflict, conflict resolution, effective communication, emotional intelligence, and critical dialogues. Additionally, time should be built in for collaboration, self-awareness, and reflection related to specific strategies for how to resolve conflicts.

Concluding remarks on future research directions

Specific to the topic in the VPD, the researchers advocate that this is a very timely topic due to the fact that up to 40% of a school leader's time is spent on conflict (Feirsen and Weitzman, 2021). If such conflict is not addressed appropriately, it could lead to unfocused, less effective principals, who turn

their attention away from their primary goals which the researchers contend are (a) improving instructional capacities of teachers who serve to increase students' well-being and increased academic achievement and (b) establishing a positive school climate for all stakeholders. With consideration of those concerns, the research team recommends future studies that would determine more specifically the amount of time school leaders spend on conflict management, particularly during a crisis such as COVID-19. Additionally, the research team recommends that a study be conducted to determine to what degree novice and experienced principals are drawn away from their instructional leadership duties or from their activities in building school climate in order for them to deal with conflicts. Another suggested research study would be one in which experienced principals, who served as principals before and during the COVID-19 pandemic, perceive how their time commitment toward conflict management changed their leadership duties. The research team plans to conduct a follow-up study with these participants to determine application of the lessons learned during the VPD on conflict management.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving human participants were reviewed and approved by Institutional Review Board IRB2017-0789D. The patients/participants provided their written informed consent to participate in this study. Written informed consent was obtained from the individual(s) for the publication of any potentially identifiable images or data included in this article.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/feduc.2022.849278/full#supplementary-material

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