Teaching Beliefs and Their Relationship to Professional Development in Special Education Teachers

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The determination and creation of professional development opportunities for teachers working in early childhood special education settings is challenging. Often, teachers are hired underequipped for positions in special education and early intervention settings (Darling-Hammond, Wei, Andree, Richardson, & Orphanos. 2009). For many, their experiences in teacher training programs have not emphasized the level of specificity surrounding special education that is necessary for them to feel comfortable or competent teaching children with disabilities or working directly with families (Darling-Hammond et. al. 2009). For seasoned teachers, continued, meaningful professional development (PD) and practice change can be difficult. This lack of preparation and sometimes resistance to modify practice, has resulted in a need to provide new and veteran teachers with supplemental PD opportunities that focus on a wide range of skills with varied delivery formats (Darling-Hammond et. al. 2009; Darling-Hammond, L. 2006; Leach & Conto 1999; Leiber et. al. 1998). While it is difficult to cover the breadth of content within early childhood special education in a single PD type event, it is nonetheless important to understand how the type of PD meets teachers' needs. Previous research has illustrated that the type of PD received impacts the implementation of new teaching strategies and has the potential to increase teachers' feelings of self-efficacy around instructional practices (De Neve, Devos & Tuytens 2015; Leach & Conto 1999; Tschannen-Moran & McMaster 2009). What is less well known is how formats of PD support and influence teachers working in inclusive settings, how these formats translate into application of skill and whether this application of skill influences teacher's self-efficacy beliefs. The current manuscript focuses on helping the reader understand the influence of teaching self-efficacy on special educator's practice and participation in PD activities as well as background on the availability of high-quality PD opportunities. More specifically, the purpose of this investigation is to provide further evidence for the relationship between type of PD and teachers' self-efficacy as well as the effect of format of PD on the application of skills within the classroom. The following research questions will be addressed:

1) What are the current PD activities of early childhood special education teachers in Kansas—type (delivery system), helpfulness of PD and future PD needs?
2) Does a relationship exist between teaching self-efficacy for preschool and infant/toddler practices and the degree to which PD activities allowed them to apply skills within their current position?
3) Does self-efficacy predict how well specific PD activities allowed them to apply skill within their current position?

Teaching Self-Efficacy

The future success of young children with disabilities relies on teachers who are adequately prepared to work in inclusive settings (Snyder et al 2012). An individual's ability to feel equipped to handle the challenging environments of early childhood special education settings is important (Tschannen-Moran & Hoy 2001; Tschannen-Moran & McMaster 2009). An integral part of facilitating preparedness and the adequacy of one's capabilities includes how teachers view themselves around working in inclusive early intervention settings. According to Bandura

(1977), self-efficacy is a person's belief about their capability to manage life events and carry out appropriate actions as it relates to specific situations. Teachers' feelings and beliefs around self-efficacy are tied to their perceptions around PD activities (Ingvarson, Meiers, & Beavis 2005; Lu 2005; Tschannen-Moran & Hoy 2007) and have been shown to impact how they implement and respond to specific educational practices associated with inclusion (De Neve, Devos, & Tuytens 2015; Jerold 2007; Rimm-Kaufman & Sawyer 2004; Sugawara, Ruder & Burt 1998; Trivette, Dunst, Hamby, Meter 2012). Moreover, previous research has also illustrated how teachers' self-efficacy is directly related to how they respond to PD activities (Scribner, 1999; Klassen & Chiu 2010, 2011; Watt, Richardson, & Wilkins 2014). Teachers with higher degrees of self-efficacy tend to seek out opportunities and are more open to using practices learned (Scribner, 1999).

The construct of self-efficacy can be described as being comprised of two paradigms: 1) confidence (i.e., energy) and 2) competence (i.e., performance) (Bruder, Dunst, Wilson, & Stayton 2013; Zimmerman 2000). It is important to note, that confidence and competence are related to distinct characteristics of a person's awareness of his or her capabilities (Kawamura, 2007) even though they are considered interrelated. Presently, a gap exists in our understanding about how these constructs of confidence and competence operate in relation to professional development activities surrounding inclusion and early intervention practices (Bruder, Dunst, & Mogro-Wilson 2011; Bruder, Dunst, Wilson, & Stayton 2013; von Suchololetz, Jamil, Larsen, & Hamre 2018). As a result, the current study attempts to address the relationship of PD activity related to these elements of teaching self-efficacy. Teachers' knowledge about job specific tasks or topics are predicated on a solid foundation of their individual self-perception. These constructs are instrumental in laying the framework for how teachers perceive their ability to do their job.

Surveys of teacher self-efficacy, as it relates to educational practice has indicated it to be instrumental an individual's ability to make a change in educational practices (De Neve, Devos, & Tuytens 2015; Dicke et al. 2014; Trivette, Dunst, Hamby & Meter 2012; Rimm-Kaufman & Sawyer 2004) and has been shown to be associated with successful teaching within inclusive settings (Sharma & Nuttal 2017). A better understanding of the influence these beliefs have on teacher's motivation and subsequent behavior is important. In particular, according to Guskey (1986), the underlying factors that motivate teachers to implement new teaching strategies gained from PD activities is key. Widely used PD formats do not take into account teacher motivation (Guskey, 1986; Watt, Richardson, & Wilkins, 2014). Gaining a better understanding of how these individual constructs of self-efficacy (i.e., self-confidence and self-competence) influence teacher's motivation and perception of PD effectiveness can have broad implications. In fact, previous research notes that when using a self-efficacy based PD model of in-service training distinct differences are seen (McKinney et. al. 1999). Teachers who exhibited lower self-efficacy scores tended to be less willing to change (McKinney et al. 1999). They tended to focus on the impact these changes would have on them. In contrast, teachers who were high in self-efficacy were more likely to recognize the benefits of the training and see it as opportunistic. They focused on the bigger picture of how this new knowledge would impact their students and their school community (McKinney et al., 1999).

Developing a better understanding of self-efficacy has the potential to create new and innovative ways to look at PD. Given that this construct is integral in the motivation and regulation of an individual's actions in both their daily and professional lives (Bandura 1977; Skinner 1995), it

offers opportunities to design PD that focuses on building underlying feelings of confidence and competence around teaching practices. This is especially important knowing that teachers who believe they are insufficiently equipped feel less competent than confident in their skills around early intervention or inclusion (Dicke et al. 2014; Durr, Chang, & Carson 2014; Gürbüztürk & Sad 2009). According to Macmillan & Meyer (2006), teachers in inclusive settings reported increased anxiety around the implementation of inclusive practices. Increased demands in more diverse classroom settings heighten teacher's perception of being unprepared to meet these challenges (Andersen, Klassen & Georgiou 2007; Dunst, Bruder, & Hamby 2015).

Professional Development

Designing PD training is challenging. More importantly, however, is the recognition of current practice and areas of need that can be addressed immediately and through ongoing PD for practicing teachers. Gaps in PD around practices of inclusion and the translation and application of evidence-based practices is evident in the current cadre of teachers (Darling-Hammond et.al. 2009; Winton 1997). The lack of training and PD opportunities, around inclusive practices, for teachers currently in the field are limited (Snyder, Hemmeter, McLaughlin 2013). Lieber et al (1998) discussed the importance of designing PD activities that foster educators' abilities to modify and adapt programming. Current models may be insufficient at providing appropriate tools that address the distinctive needs of children with disabilities (Dunst, Bruder, & Hamby 2015; Lieber et al 1998). The scarcity of available resources presents challenges and frustrations to teachers who seek to gain additional knowledge and skills. As a result, the cycle of inadequacy around teaching skills related to early intervention is perpetuated.

Designing PD for those who work in programs that have direct contact with children and families on a daily basis requires special consideration. A focus on providing PD opportunities that gives participants opportunities to modify, change and apply new knowledge is important. Therefore, creating opportunities that bring about practice change are key. Previous research points to the idea that passive learning in workshop style format contributes very little to actual practice change (Brock & Carter 2015; Sexton et. al. 1996). Despite understanding this to be the case, the majority of PD activities and opportunities center on this type of configuration (Brock & Carter 2015; Bruder, Dunst, & Mogro-Wilson 2011). It is important, therefore, to design in-service training that focuses on the inclusion of active engagement coupled opportunities to implement practice, followed by feedback and observation (Brock & Carter 2015; Kraayenoord 2003). Support provided in the beginning of practice change is critical for continued implementation of new strategies (Tschannon-Moran & McMaster 2009). The incorporation of these strategies and "hands-on" methods has been shown to influence teachers' willingness to adopt new approaches to teaching practice (Leach & Conto 1999; Snyder et. al. 2018). The creation and implementation of a successful model for PD for teachers who desire additional training and education in early intervention, inclusion or special education has the potential become a prototype for other states. Understanding the unique combination of experience, training, perceptions and self-efficacy of inclusion practices is critical in determining the focus of the training experience.

Participants

A random sample of 250 licensed early childhood educators were selected to complete a survey on PD and teaching self-efficacy. Participants were identified through a list provided by a Kansas State Department of Education program that documented those individuals licensed to teach early childhood education. A total of 62 people participated (overall response rate of 24%). Participants (n = 35) were excluded from the final sample due to several factors (i.e., failure to complete survey, no current state approved licensure). As a result, they were not included in the final analyses. The final number of respondents included 27 individuals. The distribution of ethnicity among the participants were as follows: 24 (89%) respondents indicated they were Caucasian, 1 indicated Asian (.04%), and 2 (.07%) did not indicate race. All participants were female and 66% indicated they held an advanced degree (i.e., Master's degree). Of the participants included, 67% of the participants had been teaching for less than 10 years and 59% teaching less than 5 years. All reported that they had received their teaching license from a Kansas institution and were currently employed in an educational setting in Kansas.

Measures

Preschool teaching self-efficacy. Teaching self-efficacy data were collected as described in Francois (in press). In brief, participants completed the Teacher Efficacy for Inclusion scale (TEI) (Hollander, 2011). The TEI measures teaching self-efficacy as it relates to teachers' beliefs about their teaching practices centered around the use of inclusion and preschool-age children with disabilities. The TEI scale consisted of 24 items scored on a 4-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree) with a possible scoring range from 24 to 9. High internal consistency was revealed was found (α = .96).

Confidence and competence subscales were constructed by sorting out items from the TEI into separate categories. Categorical placements for items within each were made based upon investigator derived decisions. High internal consistency was noted for both confidence (α = .94) and competence (α = .93). The confidence and competence subscales were correlated with the total score, .97 and .99 respectively, as well as with each other (r.=.92).

Infant-toddler teaching self-efficacy. Teaching self-efficacy for infant-toddler early intervention practices were collected using the early interventionist self-efficacy scale (EISES) (Lamorey & Wilcox, 2005). Items were scored on a 4-point Likert scale, ranging from 1 (strongly disagree) to 4 (strongly disagree) with a possible scoring range from 15 to 60. Moderate internal consistency was noted for the overall scale (α = .59).

The personal intervention self-efficacy subscale was used to denote practitioners' beliefs about their own on-the-job self-efficacy. Items for this subscale consisted of 9 questions from the EISES. High internal consistency was noted (α = .77).

Professional development. Participation in PD activities was measured using an adapted version of Teacher Activity Survey (Garet et. al., 1999). Respondents were asked to indicate if they had participated (i.e., 1 = yes; 2 = no) in any of the 17 listed PD activities within the last year. Items included a variety of PD opportunities, such as: mentoring programs, district workshops, organization-based trainings, informal conversations with colleagues, professional conferences, on-line modules, college coursework, online learning community, etc. To further delineate

between types of PD activities, items were categorized into formal and informal experiences. Informal PD opportunities were defined as those experiences that occurred within the educators' place of employment and did not have a formalized curriculum or set of specific outcomes. Items included in this category ranged from *mentoring programs to informal conversations with colleagues*. Formal PD opportunities were defined as those experiences that occurred outside of the educators' place of employment and did have an organized agenda or set of educational outcomes. Items included in this category ranged from *professional conferences* to *college coursework*.

Participants were also asked to rate 8 items practice-based PD experiences as to how well the experiences helped them apply new skills in their current position. Items were constructed using a 4-point Likert scale that ranged from 1 (no help) to 4 (major help). Types of PD activities included items such as *mentoring*, *meetings with colleagues*, *observing teaching of others*, and *developing goals*. To determine the internal consistency, a Cronbach's Alpha was conducted. The analysis revealed a moderately high internal consistency ($\alpha = .85$). Items were totaled to create PD informed application with a possible scoring range from 8 to 22.

Procedure

Once participants were identified from the licensed educator list, the survey was distributed via email using Qualtrics. Qualtrics is a survey delivery platform that allows research participants to access and answer questions online. Completed surveys and responses were compiled in Qualtrics for further analysis.

Data Analysis

For the current investigation, descriptions of the types of PD activities were tallied using frequency counts. To determine if a relationship existed between teaching self-efficacy (i.e., both infant/toddler and preschool practices) and the extent to which specific PD activities allowed them to apply skill within their current position, a bivariate correlation analysis was conducted. An additional linear regression analysis was conducted to determine if the self-efficacy practices predicted the extent to which specific PD activities allowed teachers to apply skills within their current position.

Results

The purpose of the current study were: 1) to describe the current PD activities of early childhood teachers in Kansas 2) to determine if a relationship exists between teaching self-efficacy (i.e., both preschool and infant/toddler practices) and the degree to which PD activities allowed them to apply skills within their current position, and 3) to determine if self-efficacy predicted how well teachers believed specific PD experiences allowed them to apply skills within their classroom.

To answer the first research question, Figures 1 and 2 provide a description of the types of PD activities that early childhood educators participated in over the course of the last year.
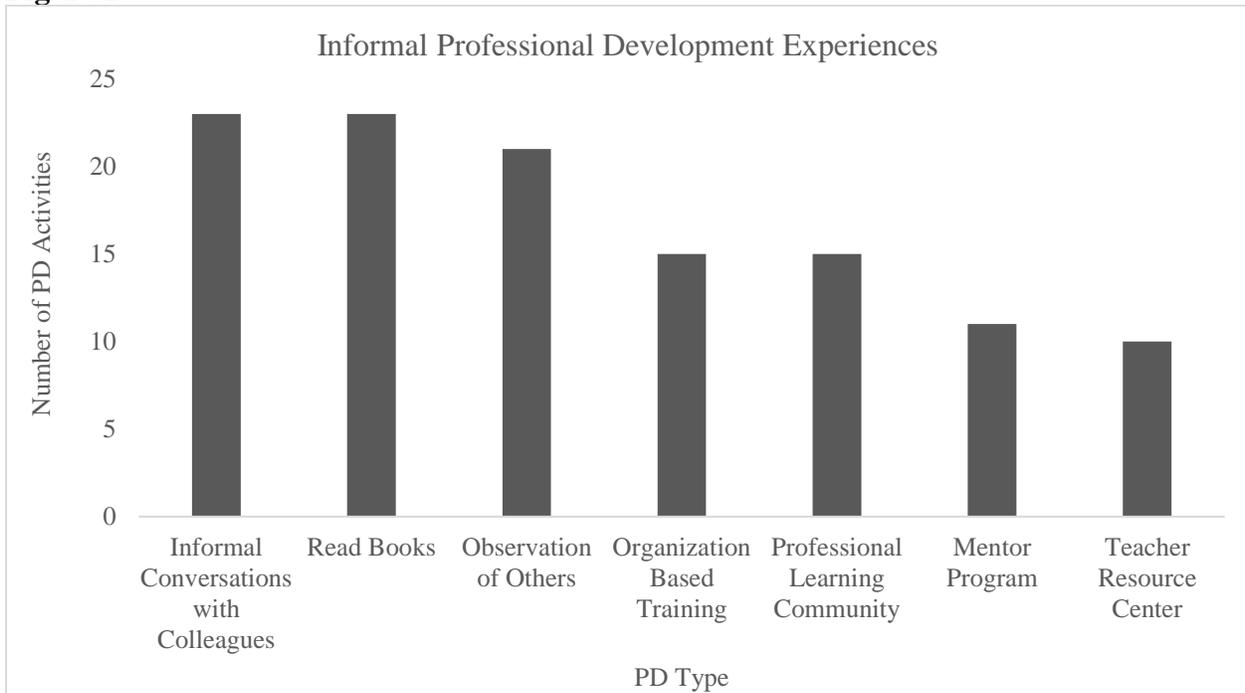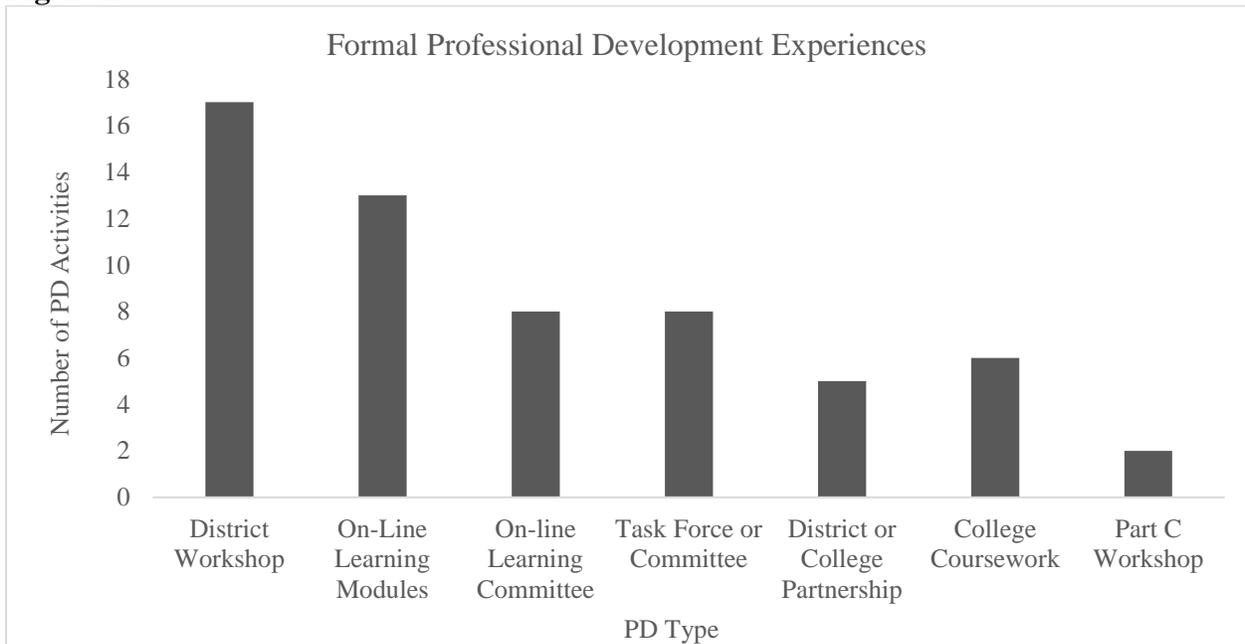
Figure 1

Informal Professional Development Experiences

(Bar chart — Y-axis: Number of PD Activities (0 to 25); X-axis: PD Type)
- Informal Conversations with Colleagues: 23
- Read Books: 23
- Observation of Others: 21
- Organization Based Training: 15
- Professional Learning Community: 15
- Mentor Program: 11
- Teacher Resource Center: 10

Figure 2

Formal Professional Development Experiences

(Bar chart — Y-axis: Number of PD Activities (0 to 18); X-axis: PD Type)
- District Workshop: 17
- On-Line Learning Modules: 13
- On-line Learning Committee: 8
- Task Force or Committee: 8
- District or College Partnership: 5
- College Coursework: 6
- Part C Workshop: 2

Educators participated in a variety of PD activities over the past year. The most frequently cited opportunities that teachers experienced included: *observing other colleague's practices*, *reading books to gain more knowledge about a specific topic area*, *having information conversations with colleagues*, and *professional conferences and district workshops*.

Table 1 shows the means, standard deviations and ranges for the outcome measures corresponding to the second research question.

Table 1
Means, Standard Deviations and Ranges for Measures.

Variables	*Mean*	*SD*	Range
PD skill application	17.51	5.33	8 - 28
Total self-efficacy Preschool	73.56	10.07	40 – 96
Competence	28.33	4.00	16 – 36
Confidence	45.22	6.27	24 – 60
Total self-efficacy Infant-toddler	50.44	10.76	43 – 60
Personal	25.93	5.64	0 – 33

Analyses for the second research question did not find an association between PD-informed application and total teaching self-efficacy for preschool practices (r = .21, p = .29). Correlations between PD-informed application and Confidence (r =- .16, p = .42) and Competence (r = .24, p = .23) were also non-significant.

In general, the results suggest that teacher's self-efficacy for preschool inclusive practices is not related to the extent to which they feel specific PD activities have helped them apply those skills within the classroom setting.

When teaching self-efficacy for infant/toddler practices was examined, a significant association was noted between personal beliefs about on-the-job self-efficacy and PD-informed application (r = .46, p = .02). As teachers' beliefs about their own on-the-job self-efficacy increased so did their beliefs about PD-informed application. Correlations between PD-informed application and overall self-efficacy for infant-toddler practices was non-significant (r = .21, p = .30).

In order to address the third research question, a regression analysis was performed. Results suggest that on-the-job self-efficacy for infant/toddler practices significant predicted the extent to which teachers perceived specific PD activities allowed them to apply new skills within their classroom. Teachers with higher feelings of personal on-the-job self-efficacy were more likely to rate PD activities as providing them with opportunities to use new skills within their classroom (see Table 2).

Table 2

		Regression coefficients			
Dependent measures	Predictors	B	β	F-test	p value
Personal self-efficacy	PD Skill Application	-14.26	.52	8.83	.007

Discussion

Participation in PD activity and the format through which that PD is offered has been linked to how, and if, teachers are willing to implement new strategies within their classroom (Bruder, Dunst, & Mogro-Wilson, 2011; Kraaynoord, 2003; Lieber et. al., 1998; Sexton et.al, 1996). In addition, a teachers' feelings of their own teaching ability and skill (i.e., self-efficacy) also plays an integral role in the adoption of practice change (Jerold 2007; Rimm-Kaufman & Sawyer 2004; Sugawara, Ruder & Burt 1998; Trivette, Dunst, Hamby, Meter 2012). It becomes important, then, to understand how PD and the participation in such activities influences teachers' willingness to engage in and make changes to classroom practice. Gaining insight into the types of PD that promote increases in teachers' self-efficacy and help to bring about the implementation of new ways of teaching have the potential to change how PD is designed and executed. The purpose of the current study was: 1) to describe the current PD activities of early childhood teachers in Kansas and 2) to determine if a relationship exists between teaching self-efficacy (i.e, preschool and infant-toddler) and the degree to which PD activities allowed them to apply skills within their current position.

Teachers in Kansas participated in a variety of PD activities over the past year. The most frequently experienced PD type activities were less formally organized. These included observing others teaching practice, reading books on content or practices where they would like to gain additional knowledge, and having informal conversations with colleagues. This finding is important. One reason that teachers may be engaging in less formal PD activities is due to the lack of programming available. This may be particularly salient for teachers working rural communities. Access to quality PD may be limited or prohibitive due to extensive travel to the PD location. For teachers who choose to seek out these types of PD experiences, it become essential to unpack what elements of informal PD are successful and how they align with recommended practices. In terms of more formalized PD type activities, the most frequently experienced included district workshops or professional conferences. Understanding the types of PD teachers actively participate in, even at this most basic level, is necessary to help shed light on which experiences teachers seek out and access. This is particularly important given that previous research has evinced that PD structure and subsequent follow-up support can influence practice change (Leiber et. al., 1998).

No relationships were noted between preschool teaching self-efficacy and the extent to which teachers' felt PD activities allowed them to apply skills within their current position. Teachers' feelings about their teaching ability related to preschool related special education practices had no bearing on how they felt about using PD to apply skills within their current position.

Interestingly, when teaching self-efficacy for infant-toddler practices was examined, a significant relationship was found. As feelings about infant-toddler teaching skill increased, so did their perception of how well PD-informed activities allowed them to apply new skills in their current position. These results are noteworthy given that previous research has indicated a link between application of skill and teaching self-efficacy (Dicke et al. 2014; Trivette, Dunst, Hamby & Meter 2012; Rimm-Kaufman & Sawyer 2004). The current study noted distinct differences between teacher's feelings about their ability for preschool and infant-toddler related special education practices. These findings are noteworthy in that it suggests that self-efficacy beliefs around infant-toddler practices are more likely to influence the degree to which teachers feel PD activities allow them to apply skills in their current position. What is not evident from these findings is why educators feel these practices help them in their classroom practice. Perhaps, this centers around the type of activities that occur in infant-toddler PD. This has direct implications for infant-toddler PD programming. Understanding self-efficacy beliefs around infant-toddler practices can help identify on-the-job skills where teachers feel confident. Gaining insight into this can shape the types of PD experiences received and provide more targeted support for those educators who may feel less confident in their skills. This has the potential to have direct implications on practices that may facilitate child learning and create a more engaging, high quality environment.

Perhaps, when considering why preschool self-efficacy beliefs are not related to PD-informed application, it is less about how confident or competent they feel and more about the quality and type of PD activity that drives their feelings around implementation of skill. One would posit, however, that participation in specific types of PD might require educators to exhibit or use particular skills that they may or may not be familiar or comfortable with using. It seems that engaging in activities outside of one's comfort zone (i.e., using different types of PD activities to employ new techniques) would require the individual to rely on their own feelings about how well they could implement new strategies. This relates directly to self-efficacy. It is possible, for the current study, that the small sample size was a factor in the non-significant results. Increases in sample size might yield a different finding.

Limitations

The small sample size is considered a limitation of the current study. It is believed, however, that there are merits within the results of this current study. This study adds to the literature by providing evidence that the type of PD activity is influential in how teachers implement strategies within their current position. This information has the potential to help identify specific routes of PD delivery that can provide teachers with knowledge and support to make practice change. It also illuminates the need to create a system that focuses on delivering quality, need specific professional development content.

An additional limitation of the current study is that is retrospective in nature. By collecting the information in this way, we are relying on the survey respondents to recall the types of PD activity they participated in within the last year as well as asking them to determine how well they believe that allowed them to apply skills within their current position. While many of the participants were recent graduates (i.e., within 2-3 years of their teacher preparation program), several had been teaching in the field for a number of years. Given that retrospective studies rely

on recall of past events, the participant's ability to accurately remember the circumstances may be subject to biases. This may result in depictions of previous situations and experiences as imprecise.

Future Research

The ways in which teachers engage and participate in PD activities directly relates to how schools and organizations development and create meaningful PD opportunities. How teachers access and use more informal means (i.e., observation of colleagues, books, and conversations with others) to gain knowledge and skills is important to understand, particularly as it relates to implementation of evidence-based practices. Future directions for research in PD must include a deeper understanding of how practice knowledge is transferred between colleagues in the work environment and whether those practices align with recommended practices. Moreover, it is imperative to determine how teachers make decisions about the types of PD opportunities they decide to seek out. Insight into the role administrative support and school climate play is necessary to discern the extent they determine teacher behavior. Each of these factors has the potential to influence how and what PD opportunities are accessed.

Seeking out more information from organizations or educational systems that are successful at implementing, managing, and creating PD opportunities is necessary. Determining the elements that are crucial for teacher success, practice change and improved student outcomes is one area in which additional research is needed. This has the potential to provide direct and specific recommendations for programs and perhaps may lead to more collaboration to maximize resources.

Conclusions

High-quality, meaningful PD opportunities for teachers working in inclusive settings is critical to the continued success of children with disabilities. In Kansas, there are limited available options for teachers seeking additional knowledge in early childhood special education topics outside of institutions of higher education. The current study attempted to provide insight into the types of PD Kansas teachers participated in over the past year as well as to initiate a look into how various PD experiences influence teaching self-efficacy. Designing PD events that infuse application of skill coupled with feedback and mentoring are necessary to effect practice change. Understanding these factors provides prospective organizations to incorporate these into systems of PD. It becomes important for future studies to investigate the effectiveness of these approaches to determine how to best meet the needs of practicing teachers in Kansas.

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