Early Childhood Personnel Center

Professional Development Practices and Practitioner Use of Recommended Early Childhood Intervention Practices

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Professional Development Practices and Practitioner Use of Recommended Early Childhood Intervention Practices

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Abstract
Results from a study of the relationship between different types of professional development practices and early childhood practitioners' use of 10 different recommended early intervention/early childhood special education practices are reported. The participants were 955 practitioners employed in early intervention, preschool, preschool special education, Early Head Start, Head Start, and other early childhood programs in one state in the USA. The practitioners were asked to indicate if their school districts, agencies, or programs (1) provided information about recommended practices, (2) had professional development specialists demonstrate the use of the practices for the practitioners, (3) provided practitioners opportunities to learn to use the practices, and (4) practitioners were provided coaching and performance feedback by professional development specialists. Responses to these four types of professional development practices were used to partition practitioners into three subgroups, with each subgroup receiving different combinations of professional development practices. Findings showed that practitioners who reported receiving a combination of all four types of professional development practices reported more frequent use of recommended practices compared to practitioners in the other two groups. Implications for in-service professional development are described.

Key Words: Professional development; recommended practices; authentic practitioner experiences; coaching; performance feedback; cluster analysis

Introduction

The identification of the core elements of evidence-based and evidence-informed professional development in early childhood intervention has been the focus of consi-

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derable attention. The study described in this paper examined the relationships between four sets of professional development practices and early childhood practitioner reported use of different kinds of early childhood intervention practices. The results were expected to support or refute contentions in the published literature about the relative importance if specific types of professional development practices.

Fixsen et al. (2005), in their review of implementation research studies, noted that implementation science simultaneously considers two interrelated sets of activities: Intervention activities to affect changes in the recipients of the interventions, and implementation practices to promote practitioner use of intervention activities. Dunst, Trivette, and Raab (2013) used this implementation-intervention practices framework to differentiate between early childhood intervention practices to affect change in child, parent, or family functioning, and implementation practices used by professional development specialists to promote practitioners' use of early childhood intervention practices. Accordingly, the use of professional development practices would be expected to be related to the use of intervention practices which in turn would be associated with outcomes of interest. As noted by Dunst and Trivette (2009), "no intervention practice, no matter its evidence base, is likely to be learned and adopted if the methods and strategies used to teach or train students, educators, practitioners, or other [professionals] are not themselves effective" (p. 164).

There have been increased calls for both the use of evidence-based professional development implementation practices (e.g., Gomez, Kagan, & Fox, 2015; Powell, Diamond, & Cockburn, 2013; Snell, Forston, Stanton-Chapman, & Walker, 2013; Snyder, Hemmeter, & Fox, 2015) and the identification of the core components, active ingredients, and key characteristics of these professional development practices (e.g., Han, 2014; Institute of Medicine and National Research Council, 2015; Knoche, Kuhn, & Eum, 2013; Snyder et al., 2012; Zaslow, 2014). This has resulted in a better understanding of what professional development specialists ought to do to ensure early childhood intervention practitioners are able to acquire the ability to use different kinds of practices to influence desired outcomes.

Desimone (2011) and Guskey (2014) among others (e.g., Bruder, 2016; Erickson, Noonan, Brussow, & Carter, 2017; Kennedy, 2016; Waters & Payler, 2015) have argued that improved delivery of professional development is necessary for improved practitioner use of effective intervention practices. Findings from research reviews and syntheses of adult learning and professional development studies provide converging evidence for the importance of four types of practices: (1) professional development specialist introduction and illustration of an intervention practice, (2) authentic practitioner learning opportunities and professional development specialist facilitated practitioner reflection on his or her understanding of and ability to use a practice, (3) professional development specialist coaching and performance feedback, and (4) ongoing follow-up supports to reinforce continued use of the practices (Bransford et al.,

2003; Cavanaugh, 2013; Cornelius & Nagro, 2014; Dunst, Bruder, & Hamby, 2015; Dunst, Trivette, & Deal, 2011; Dunst, Trivette, & Hamby, 2010; Kennedy, 2016). Research also indicates that the use of all four types of professional development practices as part of either preservice or in-service training has value-added benefits in terms of optimizing learner outcomes (Dunst & Hamby, 2015a, 2015b; Dunst et al., 2010; Schachter, 2015).

This paper includes results from analyses of the relationship between early childhood practitioner professional development practices and practitioner use of recommended early childhood intervention practices. The term professional development practices refer to the types of learning opportunities and experiences used with practitioners and how trainers, coaches, and other professional development specialists both engage practitioners in learning activities and encourage and support that learning. As noted earlier, professional development was considered an implementation practice that was used by professional development specialists to promote practitioners' use of early childhood intervention practices.

As part of a survey of the need for professional development, practitioners were asked to indicate if they were provided four different types of professional development practices. The professional development supports included the majority of the practices described above as the core components of evidence-based professional development. The four types of supports were the provision of information about different recommended practices, professional development specialist demonstration of the use of the practices, authentic practitioner learning opportunities to learn to use the practices, and professional development specialists coaching and performance feedback. The practitioners' responses were used to partition the survey respondents into three subgroups differing in the types of professional development practices and to determine if the different types of supports were related to differences in the reported use of 10 different early childhood intervention recommended practices. Practitioners who reported the provision of all four types of professional development practices from their school districts, agencies, or programs was hypothesized to be related to increased use of recommended early intervention/early childhood special education practices (Division for Early Childhood, 2014).

Aim of the study

The major aim of the study was to determine if professional development practices that mirrored research findings in previous research syntheses were associated with practitioners' reported use of early childhood intervention assessment, instructional, environmental, family, teaming, and transition practices. Based on previous research evidence, we expected the simultaneous use of four different, but interrelated, professional development practices would be related to practitioners' use of the early childhood intervention practices that were the focus of investigation.

Method

Participants

Invitations to participate in the study were electronically sent to all public and private programs and agencies serving preschool-aged children and to practitioners in these organizations in one United States. The invitations were sent by email to school districts, agency, and program directors who were asked to announce the survey to their staff and by sending emails directly to practitioners on a list maintained by the State Lead Education Agency. Two reminders were sent to recipients to encourage completion of the survey. Practitioners were eligible to complete the survey if they worked directly with young children and/or their families as a routine part of their everyday practices. Potential participants were given four weeks to complete the survey at which time recruitment was ended. IRB was not required because surveys of the sort administered in this study are routinely used by the State Lead Education Agency to obtain practitioner input to identify a need for professional development.

The participants were 955 practitioners from six different types of early childhood programs. The programs included school districts (40%), Intermediate Education Units (37%), Early Head Start/Head Start Programs (13%), childcare and preschool programs (6%), and other kinds of early childhood programs (4%). Most respondents reported their disciplines as early childhood education (45%) or early childhood special education (25%). Eighteen percent of the respondents were physical therapists, occupational therapists, or speech and language pathologists. The remaining 12% reported eight other professional disciplines (e.g., social workers, psychologists).

The practitioners worked with birth to 3-year-old children (12%), 3 to 5-year-old children (52%), birth to 5-year-old children (13%), or children both younger and older than 5-years of age (23%). Three-quarters of the practitioners had 5 or more years of experience working with young children, and 55% of the practitioners had 10 or more years of experience.

Survey

The participants completed a survey including 47 assessment, environment, instruction, family, teaming, and transition practices adapted from the Division for Early Childhood (2014) recommended early intervention/early childhood special education practices. Each practice area on the survey included between 2 (transitions) and 13 (instruction) items. Practitioners were asked to indicate on a 5-point Likert scale the extent to which they currently used each of the practices (e.g., I work with a family to identify family preferences for assessment purposes; I build trusting and respectful partnerships with families).

The practitioners were also asked to indicate for each practice area if they were provided any of four different types of professional development practices from their

school districts, agencies, or programs. The four types of professional development practices included information provision (readings, discussions, lectures), demonstrations (film, video clips, live demonstrations), authentic practitioner learning opportunities (opportunities to practice the skills), and coaching/collaboration (opportunities to practice skills with feedback). Respondents were asked to "check all that apply." They could also indicate "unsure or do not know."

Participants were instructed not to rate the items in any particular practice area if they were not applicable to their current position or role. As a result, the sample sizes for the different practice areas were not the same. The sample sizes for the five practice areas ranged between 781 (transitions) and 955 (assessment).

Data preparation

K-means cluster analysis (Alsabti, Ranka, & Singh, 1997; Khan & Ahmad, 2004) was used to partition participants into subgroups based on the types of professional development they reported receiving in each practice area. This type of cluster analysis partitions participants into subgroups where group membership is defined by participants having similar patterns of responses. In our case, this was based on different combinations of the four different types of professional development (information, demonstration, practice opportunities, and coaching and feedback) that were the focus of investigation. K-means cluster analysis minimizes differences within a subgroup and maximizes the differences between subgroups where each subgroup differs with regard to the types of professional development received.

Two, 3, and 4 group solutions were run where the 3 group solution maximized the differences between subgroups. As expected, the three subgroups differed in terms of the professional development experienced by the participants in each subgroup as described in the Results section. This was determined by a particular type of F-test statistic that minimizes within subgroup variance and maximizes between subgroup variance.

Principal components factor analysis with varimax rotation (DeVellis, 1991; Di Franco & Marradi, 2013) was used to construct subsets of practices for each practice area except transitions which included only two items. Each type of practice, except teaming, had two- factor solutions. Table 1 shows the types of items included in each of the 10 subsets of practices. The average ratings for each set or subset of practices were used as the dependent measures in the analyses described below where each measure ranged between 1 and 5.

Table 1.
Types of DEC Recommended Practices Constituting the Focus of Analysis

DEC Recommended Practices[a]	Number of Items	Practice Example[b]
Assessment		
Traditional Assessment Practices	5	Use Assessment Tools to Detect child progress
Authentic Assessment Practices	6	Obtain information about child skills in daily activities
Instruction		
Instructional Practices	10	Embed instruction within/across routines and activities
Instructional Adaptations	3	Adapt instructional strategies for dual language learners
Environment		
Environmental Arrangements	4	Modify/adapt environments to promote child participation and learning
Assistive Technology	2	Use assistive technology to promote child participation in learning experiences
Family		
Relationship-Building Practices	4	Build trusting and respectful relationships with families
Capacity-Building Practices	6	Engage family members in opportunities that strengthen parenting Knowledge and skills
Teaming and Collaboration	5	Work together as a team to plan and implement supports to meet Child and family need
Transitions	2	Use a variety of strategies to support successful transitions

[a] The DEC Interaction Practices indicators were inadvertently omitted from the survey.
[b] Abbreviated description of the survey items.

Data analysis

A series of 3-Between Type of Professional Development Practices ANOVAs with pre-planned contrasts were used to determine if reported use of the 10 early intervention/early childhood special education practices in Table 1 differed as a function of

the types of professional development practices. The pre-planned comparisons were between practitioners receiving (1) all four types of practices vs. only one type of practice, (2) all four types of practices vs a few types of practices, and (3) a few types of practices vs only one type of practice.

Statistical significance testing for the three pre-planned comparisons was supplemented with Cohen's d effect size estimates for the three between subgroup comparisons (Coe, 2002; Dunst & Hamby, 2012). These Cohen's d standardized mean difference effect sizes were computed as the difference between the average scores for each pair of subgroups divided by the pooled standard deviation for the subgroups.

Results

Cluster analysis findings

The K-means cluster analyses for each practice area all produced near-identical three group solutions which were designated as high, moderate, and low degrees of professional development based on the percentage of respondents who indicated that they either received or did not receive each of the four types of professional development practices. The majority of practitioners in the high support group reported receiving all four types of professional development from their school district, program, or agency. Practitioners in the moderate support group reported receiving some opportunities to learn to use an intervention practice and also some but limited coaching and feedback. Practitioners in the low support group reported receiving only some type of information about the intervention practices.

The average number of practitioners was 242 (SD = 23) in the low subgroup, 371 (SD = 75) in the moderate subgroup, and 232 (SD = 67) in the high subgroup. K-means cluster analysis maximizes the differences between-subgroups using an algorithm that produces optimal between-subgroup F-test statistics for each type of professional development practice. All of the between subgroup F-tests in each set of analysis were significant beyond the p = .0000 level for each type of professional development.

Table 2 summarizes the results from the six sets of analyses. The means and ranges for each type of professional development are interpreted as the percentage of practitioners in each subgroup that reported receiving each type of support. For example, 91% of the practitioners in the high subgroup reported, on average, receiving information about the practices as one method of professional development, whereas none of the practitioners in the moderate subgroup reported this type of professional development. Practitioners in the low subgroup reported receiving only information about each set of recommended practices. Based on the percentage of practitioners receiving the different types of professional development, the high support subgroup clearly differed from the other two subgroups, whereas the moderate and low support subgroups were more alike than different except for the provision of informational supports.

Table 2.
Cluster Results for the Proportion of Participants Receiving Different Types of Professional Development Supports

Types of Professional Supports[a]	Information Provision			Demonstration of the Practice			Opportunities to Use the Practice			Coaching and Feedback		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
High Support	.91	.10	.70-.97	.75	.18	.59-1.00	.86	.15	.62-.96	.76	.15	.60-1.00
Moderate Support	.00	.00	.00-.00	.13	.05	.06-.18	.31	.05	.25-.37	.23	.12	.00-.33
Low Support	1.00	.00	1.0-1.0	.15	.12	.00-.35	.09	.09	.00-.21	.12	.09	.00-.27

[a]Low support included primarily only provision of information about a practice; moderate support included limited provision of authentic learning opportunities and coaching/feedback; and high support included a combination of all four types of professional development supports.

Between subgroup differences

Table 3 shows the results for the 10 sets of between types of professional development subgroup ANOVAs for each of the practice area ratings for current use of the recommended practices. Each analysis produced statistically significant between-subgroup differences for all 10 dependent measures. In every case, the average scores for the high professional development subgroup indicated more use of the practices compared to the other two subgroups. In contrast, the low and moderate subgroups had lower and more similar mean scores for all but one of the practices. This was confirmed from the pre-planned comparisons described next.

The results from the pre-planned comparisons are shown in Table 4. There were statistically significant between-subgroup differences in the reported use of all 10 sets of practices for both the high vs. low professional development and the high vs. moderate professional development subgroups. The sizes of effects for these between-subgroup differences were either small or medium, except for teaming, where the size of effect was large for the high vs. low support group comparison. In contrast, there was only one statistically significant between-subgroup difference for the low vs. moderate professional development comparisons (traditional assessment practices). Practitioners in the moderate subgroup reported more use of these practices compared to practitioners in the low subgroup (Table 3). The difference was, however, associated with only a small size of effect. In each of the other analyses of low vs. moderate subgroups use of the practices, there were no between-subgroup statistically significant differences and the effect sizes for the comparisons were all very small.

Discussion

Findings from the analyses reported in this paper confirmed the expectation that the availability and provision of professional development from practitioners' school districts, agencies, or programs would be related to more frequent reported use of early intervention/early childhood special education recommended practices. Results also provided support for the hypothesis that a combination of the different types of professional development practices would be associated with more frequent use of the practices. More specifically, the results indicated that practitioners who received a combination of all four types of professional development investigated in our study reported more frequent use of all 10 types of recommended early childhood intervention practices.

Research syntheses of professional development studies include evidence that the combined use of the professional development implementation practices examined in this paper are related to increased practitioner use of different kinds of intervention practices and are also associated with better practitioner and child/student outcomes (e.g., Dunst et al., 2015; Dunst & Hamby, 2015a; Dunst et al., 2010; Kennedy, 2016). Dunst et al. (2015), in a metasynthesis of 550 in-service professional development stud-

ies, found that professional development specialist demonstration and illustration of a practice, authentic practitioner learning opportunities, and coaching and performance feedback, were the particular core components associated with practitioner benefits. In addition, coaching and performance feedback following initial in-service training bolstered the effects of in-service professional development. Knoche et al. (2013) also found this to be the case in a study of in-service professional development to promote early childhood intervention practitioners' routine use of coaching practices.

Table 3.
Results for the Between Types of Professional Development Supports to Build Practitioner Capacity to Use Different Types of Early Childhood Intervention Practices

	High Support		Moderate Support		Low Support		Between Group	
Practice Areas	Mean	SD	Mean	SD	Mean	SD	*F*-Test	*p*-value
Assessment								
Traditional Assessment	4.37	.57	4.26	.60	4.06	.65	17.55	.0000
Practices	4.10	.61	3.90	.68	3.87	.68	10.70	.0000
Authentic Assessment Practices								
Instruction								
Instructional Practices	4.33	.58	4.09	.61	4.14	.64	12.33	.0000
Instructional Adaptations	3.76	.95	3.53	1.00	3.58	1.00	4.39	.0127
Environment								
Environmental Arrangements	4.18	.62	3.99	.73	3.94	.75	7.95	.0004
Assistive Technology	4.06	.88	3.79	1.01	3.82	.91	5.72	.0034
Family								
Relationship-Building Practices	4.55	.54	4.34	.56	4.37	.60	8.69	.0000
Capacity-Building Practices	4.20	.66	3.80	.74	3.78	.89	19.81	.0000
Teaming/Collaboration	4.34	.66	3.76	.91	3.67	.85	40.35	.0000
Transitions	4.30	.76	3.73	.97	3.82	.89	21.28	.0000

Table 4.
Between Types of Professional Development Supports Preplanned Comparisons

Practice Areas	High Support vs. Low Support			High Support vs. Moderate Support			Low Support vs. Moderate Support		
	t-test	*p*-value	*d*	*t*-test	*p*-value	*d*	*t*-test	*p*-value	*d*
Assessment									
Traditional Assessment Practices	5.83	.0000	.50	2.22	.0268	.18	4.13	.0000	.32
Authentic Assessment Practices	4.12	.0000	.36	3.98	.0001	.36	0.55	.5817	.04
Instruction									
Instructional Practices	3.61	.0003	.31	4.59	.0000	.40	.80	.4218	.07
Instructional Adaptations	2.06	.0395	.19	2.78	.0055	.24	.59	.5536	.06
Environment									
Environmental Arrangements	3.73	.0002	.36	3.30	.0010	.28	.97	.3342	.08
Assistive Technology	2.50	.0125	.26	3.30	.0010	.28	.47	.6377	.04
Family									
Relationship-Building Practices	3.61	.0003	.32	3.87	.0001	.38	.60	.5483	.05
Capacity-Building Practices	5.99	.0000	.53	5.22	.0000	.56	.44	.6619	.03
Teaming/Collaboration	8.07	.0000	.88	7.85	.0000	.72	1.31	.1900	.11
Transitions	5.06	.0000	.58	6.45	.0000	.66	1.22	.2223	.10

One goal of in-service professional development in early intervention/early childhood special education is building the capacity of early childhood intervention practitioners to become proficient in the use of the practices constituting the focus of in-service training (e.g., Han, 2014; Harris, 2015; Kagan, Castillo, Gomez, & Gowani, 2013; LeMoine, 2008; Pacchiano, Klein, & Hawley, 2016). Research on the development of expert performance indicates that repeated, authentic learning opportunities are a

necessary condition for becoming proficient in a skill area (Alexander, 2003; Ericsson & Charness, 1994; Ericsson, Krampe, & Tesch-Romer, 1993) and that supportive feedback and guidance reinforces practitioner acquisition of expertise (Hillman, Schwandt, & Bartz, 1990). As noted by Bransford et al. (2003), "In order for [practitioners] to change their practices, they need opportunities to try things out…and receive [performance] feedback" (p. 30). On the one hand, this suggests that practitioners who have opportunities to use recommended practices and who are provided supportive feedback will more likely develop expertise. On the other hand, the provision of only information about recommended practices or passive practitioner participation in learning about the practices is not likely to have any lasting benefits and most certainly will not result in expert performance. These contrasting conditions were found in the study described in this paper in terms of practitioner practice opportunities and performance feedback being associated with the more frequent use of recommended practices and less than optimal performance was related to only provision of information about the practices.

Implications for practice

Given the call for the adoption and use of capacity-building professional development practices (e.g., Bruder, 2010; Bruder, 2016; Bruder, Mogro-Wilson, Stayton, Smith, & Dietrich, 2009; Kagan, Kauerz, & Tarrant, 2008), and findings from the study described in this paper as well as in other reports (e.g., Browder et al., 2012; Dunst et al., 2011), the implications are rather straightforward for informing in-service professional development initiatives and activities. School district, agency, or program provided or procured professional development ought to include the kinds of practices described in this paper as necessary conditions for improving practitioner confidence and competence in using early intervention/early childhood special education recommended practices. Evidence-based frameworks and models have been developed based on available research evidence indicating that effective professional development needs to include multiple core components if professional development is to be effective in terms of optimal learner benefits (e.g., Desimone, 2009; Dunst, 2015). These as well as other frameworks and models (e.g., Browder et al., 2012; Bruder & Dunst, 2015; Dunst et al., 2015; Guskey, 2014) provide rubrics for planning, implementing, and evaluating the effectiveness of professional development designed to promote and/or improve early childhood practitioners use of recommended (Division for Early Childhood, 2015), evidence-informed (Dunst, 2017), and evidence-based (Odom, 2008) early childhood intervention practices.

The call for improving in-service professional development for promoting early childhood practitioners' use of evidence-based intervention practices is not limited to early intervention/early childhood special education. Yousafzai et al. (2014), for example, noted a need for adoption of the same types of capacity-building professional

development practices described in this paper as necessary to improve health care providers' use of intervention practices to promote child health and development. We note, however, that considerable work is still needed in terms of the workforce in early intervention/early childhood special education. Bruder (2010), for example, noted it "remains a challenge to build the capacity of the workforce to implement evidence-based practices across and within all service delivery components of [early childhood intervention] and measures outcomes for effectiveness" (p. 348).

Conclusion

The patterns of results found in our study are consistent with findings in research syntheses of both preservice and in-service professional development studies where a combination of practices was found to be related to student and professional use of the intervention practices that were the focus of professional development. The results add to this knowledge base by demonstrating that the professional development provided and procured by the study participants covaried with practitioners' use of 10 different types of early childhood intervention practices.

Limitations

Studies of the sort described in this paper include limitations that need to be pointed out to place the results in proper context. One limitation is the fact that study participants self-reported both their use of the early childhood intervention practices constituting the focus of investigation and their receipt of professional development. Another limitation is the lack of detailed information about the specific types of professional development afforded the study participants for each type of professional development practice. A third limitation is the fact that the study did not include the DEC recommended interaction practices indicators due to being inadvertently omitted from the survey. The extent to which the pattern of results would be similar or different therefore could not be determined.

Notwithstanding these limitations, the patterns of results are nearly identical to those reported in other studies and research syntheses of the relationships between professional development and practitioner use of early childhood intervention and other types of practices (e.g., Desimone, 2009; Dunst et al., 2015; Dunst et al., 2010; Garet, Porter, Desimone, Birman, & Yoon, 2001; Guskey & Yoon, 2009; Kennedy, 2016). The interested reader is referred to Dunst (2013), Erickson et al. (2017), and Hunzicker (2011) for checklists that include the key characteristics of evidence-based professional development that a practitioner can use to select training opportunities aligned with research findings or to evaluate if a professional development activity included effective elements.

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