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# Confidence and Competence Appraisals of Early Intervention and Preschool Special Education Practitioners\*

## *Abstract*

*More than 1,800 early intervention practitioners serving birth to 3 year old children and preschool special education practitioners serving 3 to 5 year old children made self-judgments of their competence and confidence in using six different kinds of practices (family-centered practices, teaming and collaboration, assessment and evaluation, IFSPs and IEPs, instructional practices, and natural environments and inclusion). The participants include regular and special education teachers, speech, occupation and physical therapists, and psychologists and social workers. Results showed that in nearly all analyses, the practitioners judged themselves as more confident than competent in using the practices with children and families regardless of discipline. The findings taken together constitute the first set of data on the similarities and differences in practitioners' appraisals of their early intervention and preschool special education capabilities. Implications for research and practice are described.*

*Key words: Early childhood practitioners, self-efficacy beliefs, self-competence, self-confidence.*

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\* The research reported in this paper was supported, in part, by funding from the U.S. Department of Education, Office of Special Education Programs (Grant # H324J020002). The opinions expressed, however, are those of the authors and do not necessarily reflect the official position of the Department or Office. Appreciation is extended to the practitioners who completed the survey in the study and to Deborah W. Hamby for data analysis.

Professional preparation in early intervention and early childhood special education has primarily been concerned with student and practitioner knowledge and skill acquisition in core content or practice areas (Miller & Stayton, 2000; Winton, McCollum, & Catlett, 1997). Training professionals to work with young children and their families begins at the preservice level (Bailey, Palsha, & Huntington, 1990; Bruder & Dunst, 2005; Korinek & McLaughlin, 1996; Pretti-Frontczak, Giallourakis, Janas, & Hayes, 2002) and continues as part of inservice training provided to or procured by practitioners in order to improve their knowledge and skills (Gallagher, Malone, Cleghorne, & Helms, 1997; Malone, Straka, & Logan, 2000; Sexton, Snyder, Lobman, Kimbrough, & Matthews, 1997).

The areas constituting the focus of preservice and inservice training in early intervention and early childhood special education include, but have not been limited to, family-centered practices (Bruder, 2000; McBride, Sharp, Hains, & Whitehead, 1995; Pretti-Frontczak et al., 2002), teaming and collaboration (Bruder, 1994; Olson, Murphy, & Olson, 1998), child and family assessment and evaluation (Bailey & Simeonsson, 1988; Neisworth & Bagnato, 2000), Individualized Family Service Plan (IFSP) and Individualized Education Plan (IEP) development and implementation (Bennett, Lingerfelt, & Nelson, 1990; Kamens, 2004; Torgerson, Miner, & Shen, 2004), instructional practices and teaching methods (Wolery, 1994; Wolery & Sainato, 1996), and natural environment and inclusion practices (Bruder, 1993, 1998; Cripe, Hanline, & Daley, 1997; Dunst & Bruder, 2005; Harrison, Able-Boone, & West, 2001). The largest majority of these content areas and practices are recommended for practicing early childhood intervention (e.g., Odom, Hanson, Blackman, & Kaul, 2003; Sandall, Hemmeter, Smith, & McLean, 2005) and are considered the practices necessary for early childhood practitioners to be considered capable and competent (Guralnick, 2001; Odom & Wolery, 2003).

The extent to which early intervention and preschool special education practitioners possess the knowledge and skills to effectively work with young children and their families has been the focus of investigation for more than 30 years (e.g., Bailey, Simeonsson, Yoder, & Huntington, 1990; Hutinger, 1981; Miller & Stayton, 2000; Stile & Pettibone, 1981; Winton et al., 1997). This includes both preservice (Bailey, Palsha et al., 1990) and inservice (Malone et al., 2000; Sexton et al., 1996) personnel preparation and training, and the assessment of the consequences of efforts to affect changes in practitioner knowledge and skills (Ballantyne, Hansford, & Packer, 1995; Malone et al., 2000; Wolfe, 1993).

Neither preservice nor inservice training however is likely to be *defacto* effective in changing early childhood practitioner practices unless there are concomitant changes in judgments of one's ability to affect or influence desired outcomes (Bandura, 1986, 1997; Druckman & Bjork, 1994). Research in a number of fields indicate that self-perceptions of both confidence and competence either directly influence or mediate the relationship between the provision of training and practitioners' use of newly acquired knowledge and skills (Abbitt & Klett, 2004; Colbeck, Cabrera, & Terenzini, 1999; Delfin &

Roberts, 1980; Jarvis & Pell, 2004; Khamis, 1995). Therefore, a better understanding of early intervention and preschool special education practitioners' sense of confidence and competence would seem important in order to appreciate the nature of their belief appraisals.

Unfortunately, little is known about the confidence or competence beliefs of early intervention or preschool special education practitioners (Lamorey & Wilcox, 2005; Moore & Wilcox, 2006; Sawyer & Campbell, 2009), despite the fact that it is known that self-efficacy beliefs, and especially beliefs about one's ability to affect change, predict how knowledge and skills are used to improve one's own performance as well as affect child behavior and outcomes (Delfin & Roberts, 1980; Doolittle, Dodds, & Placek, 1993; Fleet & Patterson, 2001). What is known is limited to only a few early interventions or preschool special education practices (Moore & Wilcox, 2006; Sawyer & Campbell, 2009; Wilcox, Guimond, Campbell, & Moore, 2006). As part of a research synthesis of the relationship between early childhood practitioner beliefs and adoption and use of recommended, innovative or evidence-based practices, only a few studies were located that investigated this relationship among early intervention or preschool special education practitioners (Dunst, Trivette, Meter, & Hamby, in preparation).

Studies of regular early childhood teachers show that their efficacy beliefs are related to their teaching practices and that the use of the practices positively influence child learning (e.g., McMullen, 1999; Paris & Winograd, 1998; Rimm-Kaufman & Sawyer, 2004; Stuart & Thurlow, 2000; Sugawara, Ruder, & Burt, 1998; Tschannen-Moran & Hoy, 2007). The practices and child outcomes that have constituted the focus of investigation include, but are not limited to, inclusion (Lieber et al., 1998), developmentally appropriate practices (McMullen, 1997), classroom practices (Kim & Kim, 2010), instructional practices (Sugawara et al., 1998), early science and math learning (Lee, 2007), and early literacy learning (Lee, 2007). Research also shows that the relationships between self-efficacy beliefs and early childhood practices operate much the same among practitioners throughout the world (Geoghegan, Geoghegan, O'Neill, & White, 2004; Gürbütürk & Sad, 2009; Kim & Kim, 2010; Lin & Gorrell, 1997).

The purpose of the study described in this paper was to obtain information about the self-competence and self-confidence of early intervention and preschool special education practitioners. Confidence and competence are interrelated but different components of a sense of one's perceived capacities and capabilities (Colbeck et al., 1999; Kawamura, 2007; Stewart et al., 2000). Competence was measured in terms of one's belief in their ability to perform and proficiently implement specified tasks or practices (Khamis, 1995). Confidence was assessed in terms of the perceived ease at which practitioner-implemented practices would have expected or anticipated effects (Bandura, 1981). Competence is a judgment of the ability to effectively use knowledge and skills, whereas confidence is a judgment of the likelihood that one can perform a task in a self-assured manner (Delfin & Roberts, 1980). According to Stephenson (1992), "capable people have confidence in their ability to (1) take effective and

appropriate action, (2) explain what they are about, (3) live and work effectively with others, and (4) continue to learn from their experiences, both as individuals and in association with others” (p. 2).

The extent to which practitioners from different disciplines had similar or different self-efficacy beliefs, and whether there were differences in practitioners’ self-judgments of their confidence and competence in using recommended early intervention and preschool special education practices, was the focus of investigation. This was accomplished using a newly developed scale completed by a large sample of practitioners with varied professional backgrounds and experience. The yield was expected to include a more comprehensive understanding of the similarities in difference in the self confidence and self competence of early intervention and preschool teachers, therapists, psychologists, and social workers.

Previous research on the confidence and competence of practitioners in a number of professions indicates that practitioners almost always judge themselves as more confident than competent in performing specified tasks (e.g., Gervais & Odean, 1998; Gürbüzürk & Sad, 2009; Kawamura, 2007; Kruger & Dunning, 1999; Scheinkman & Xiong, 2003; Souto-Manning & Swick, 2006; Wagenaar & Keren, 1986). Therefore, we expected to find differences in the practitioners’ self-efficacy beliefs, favoring confidence over competence. The study extends previous research by investigating differences in self-efficacy beliefs in terms of six recommended and evidence-based early intervention and preschool special education practices (Dunst, 2004; Guralnick, 2001; Odom & Wolery, 2003; Sandall et al., 2005). This is in contrast to previous studies where either practitioner confidence or competence were investigated in terms of only one early intervention or preschool special education practice (e.g., Abbitt & Klett, 2004; Burgess, Lundgren, Wills, & Pianta, 2001; Clever, Bear, & Juvonen, 1992; Garbett, 2003; Weintraub Moore & Wilcox, 2006).

## Method

### *Participants*

The participants were 1,892 practitioners in early intervention and preschool special education programs in 45 of the 50 United States and the U.S. Virgin Islands. Early intervention in the United States is provided to infants and toddlers with disabilities or developmental delays birth to three years of age and preschool special education is provided to children with disabilities or developmental delays 3 to 5 years of age. The practitioners were recruited using mailing lists provided by early intervention and preschool special education State Coordinators, the State Coordinators distributing survey announcements to programs and providers in their States or posting the announcements on their websites, direct contacts with early intervention and preschool special education programs and providers, and by postings on the National Early Childhood Technical Assistance Center listserv ([www.nectac.org](http://www.nectac.org)).

Table 1  
*Percentages of Early Childhood Practitioners Completing the Study Survey*

| Background Characteristics                  | Professional Disciplines |                           |                                   |                                  |                           |                           |
|---|--------------------------|---------------------------|-----------------------------------|----------------------------------|---------------------------|---------------------------|
|   | Special Education        | Early Childhood Education | Early Childhood Special Education | Occupational or Physical Therapy | Speech/Language Pathology | Psychology or Social Work |
| <i>Gender</i>                               |                          |                           |                                   |                                  |                           |                           |
| Female                                      | 95                       | 97                        | 98                                | 97                               | 98                        | 94                        |
| Male  | 5                        | 3                         | 2                                 | 3                                | 2                         | 6                         |
| <i>Age (Years)</i>                          |                          |                           |                                   |                                  |                           |                           |
| 18-30                                       | 13                       | 16                        | 17                                | 13                               | 17                        | 21                        |
| 31-40                                       | 25                       | 29                        | 30                                | 27                               | 27                        | 26                        |
| 41-50                                       | 27                       | 25                        | 24                                | 33                               | 30                        | 25                        |
| 50+   | 35                       | 30                        | 29                                | 27                               | 26                        | 27                        |
| <i>Education</i>                            |                          |                           |                                   |                                  |                           |                           |
| High School/Associate's Degree              | 1                        | 8                         | 1                                 | 2                                | 1                         | 2                         |
| BS/BA/BSW                                   | 24                       | 50                        | 37                                | 47                               | 5                         | 42                        |
| MS/MA/MSW                                   | 72                       | 41                        | 61                                | 48                               | 93                        | 42                        |
| Doctorate                                   | 3                        | 1                         | 1                                 | 3                                | 1                         | 14                        |
| <i>Professional Licensure/Certification</i> |                          |                           |                                   |                                  |                           |                           |
| Yes   | 84                       | 68                        | 85                                | 84                               | 85                        | 56                        |
| No  | 16                       | 32                        | 15                                | 16                               | 15                        | 44                        |
| <i>Years of Professional Experience</i>     |                          |                           |                                   |                                  |                           |                           |
| 5 or less                                   | 30                       | 34                        | 28                                | 26                               | 27                        | 44                        |
| 6-10  | 22                       | 21                        | 23                                | 26                               | 21                        | 24                        |
| 11-15                                       | 17                       | 22                        | 20                                | 15                               | 20                        | 15                        |
| 16-20                                       | 14                       | 12                        | 14                                | 13                               | 15                        | 8                         |
| 20+   | 17                       | 11                        | 15                                | 20                               | 17                        | 1                         |

Table 1 shows selected background characteristics of the participants organized by professional discipline. The number of occupational therapists and physical therapists, and the number of psychologists and social workers, were too small to conduct separate analyses of the four disciplines, so they were combined for purposes of data analysis.

The largest majority (97%) of the study participants were female, where slightly more of the special education and psychology or social work respondents were male,  $\chi^2 = 16.19$ ,  $df = 5$ ,  $p < .01$ . The ages of the study participants from the different disciplines were almost equally distributed across the four age ranges,  $\chi^2 = 20.25$ ,  $df = 15$ ,  $p = .16$ . Most (84%) of the participants were 31 years of age or older.

The practitioners from the different disciplines varied according to the highest degree attained,  $\chi^2 = 368.72$ ,  $df = 15$ ,  $p < .0001$ . Whereas most of the practitioners (95%) had either bachelor's or master's degrees, the percentage of speech and language pathologists and special educators who had a masters degree was higher than for the other disciplines. The practitioners also differed in terms of holding a professional license or credential,  $\chi^2 = 91.99$ ,  $df = 5$ ,  $p < .0001$ . The percentages of early childhood educators, psychologists, and social workers who indicated they had a professional license or certification was smaller compared to the other disciplines.

The participants differed in terms of their years of professional experience,  $\chi^2 = 48.16$ ,  $df = 20$ ,  $p < .001$ . The psychology and social work practitioners, and to a lesser degree the early childhood educators, had fewer years of experience compared to the practitioners from the other disciplines.

Preliminary analyses of the relationship between the background characteristics of the study participants and their assessment of their confidence and competence showed very little covariation between the two sets of measures. The background characteristics measures therefore were not included in the analyses described below.

### *Survey*

The participants completed a survey that included six early intervention or preschool special education practices: family-centered practices, teaming and collaboration, child and family assessment and evaluation, IFSP or IEP practices, instructional practices, and natural environment or inclusion practices. Each practice had two indicators for measuring competence and two indicators for measuring confidence. The items were developed following guidelines described by Pajares (1997) and Stewart et al. (2000). Table 2 includes abbreviated descriptions of the types of items that were used to measure practitioner competence and confidence in each practice area. The items were each rated on a 7-point scale from *never* (0) to *all the time* (6). The survey was completed online using Survey Monkey ([www.surveymonkey.com](http://www.surveymonkey.com)).

Table 2  
*Examples of the Competence and Confidence Scale Items*

| Practice Domain                | Type of Capability <sup>a</sup>  |   |
|--------------------------------|--|---|
|                                | Competence Indicator   | Confidence Indicator  |
| <i>Procedural Practices</i>    |  |   |
| Family-Centered Practitioners  | I am able to actively involve families in obtaining needed resources       | Getting families to communicate their needs to me is easy   |
| Teaming and Collaboration      | I am able to jointly plan interventions with other team members            | Role release with other team members makes me feel good about my practices                          |
| Assessment and Evaluation      | I am able to accurately identify children's strengths and needs            | I feel sure my assessments of children's capabilities are accurate                                  |
| <i>Intervention Practices</i>  |  |   |
| IFSPs/IEPs                     | I am able to involve families in identifying IFSP outcomes/IEP objectives  | Writing IFSP outcomes/IEP objectives is a breeze to me  |
| Instructional Practices        | My efforts to get parents to promote child engagement are successful       | I feel good about helping parents use child-initiated learning activities                           |
| Natural Environments/Inclusion | I am able to get parents to involve their children in community activities | It is rewarding seeing parents involve their children in naturally occurring learning opportunities |

<sup>a</sup>Abbreviated survey scale items.

There were two versions of the survey, one for early intervention practitioners and one for preschool special education practitioners. The wording of the items on the two versions of the survey varied in order to make the items either early intervention or preschool special education specific. For example, the early intervention version used Individualized Family Services Plans (IFSP) and natural environments to assess practitioner competence or confidence, whereas the preschool special education version used Individualized Education Plans (IEP) and inclusion to assess practitioner efficacy beliefs.

The six practices were divided into two categories: *procedural practices* (family-centered practices, teaming and collaboration, and child assessment and evaluation) and *intervention practices* (IFSP or IEP practices, instructional practices, and natural environment or inclusion practices). Principal components-factor analysis with oblique rotation was used to ascertain the scale psychometric properties. Each of the four analyses (procedural competence, procedural confidence, intervention competence, and intervention confidence) produced internal consistency estimates (Carmines *theta*) between .63 and .79 (Carmines & Zeller, 1979). Each of the factor analyses produced a single-factor solution or a single-factor, second-order factor solution warranting summated scores (Spector, 1992).

Confirmatory factor analysis (CFA; Jöreskog & Sörbom, 1998) was used to determine if the competence and confidence indicators for the two types of practices (procedural vs. intervention) were each measuring separate but interrelated constructs as hypothesized. More specifically, CFA was used to evaluate the construct validity of the newly developed scale (Clark & Watson, 1995). The constant validity of other self-efficacy scales have also been ascertained using CFA (e.g., Cerit, 2010; Corbell, Osborne, & Grable, 2008).

Figure 1 shows the CFA model that was tested. The metrics used to assess construct validity were the fit indices for evaluating how well the model corresponded to the pattern of relationships among the measures (Bentler, 1990; MacCallum & Austin, 2000) and the structural coefficients (factor loadings) of the measured variables for each latent variable in the model (Thompson & Daniel, 1996). The comparative fit indices can range from 0 to 1, where a fit measure above 0.90 is considered an adequate fit of a model to the data and a fit measure above 0.95 is considered an excellent fit of a model to the data. Structural coefficients equal to or greater than 0.60 which are statistically significant are considered evidence that a measured variable is an indicator for a latent variable. The comparative fit, normed fit, non-normed fit, and adjusted goodness of fit indices were 0.98, 0.97, 0.97, and 0.90 respectively. The median structural coefficient of the measured variables was 0.69 (Range = 0.56 to 0.76) where all but one coefficients was 0.60 or larger. All of the structural coefficients were statistically significant beyond the  $p < .00001$  level. The results, taken together, provide evidence for the construct validity of the self-efficacy scale.



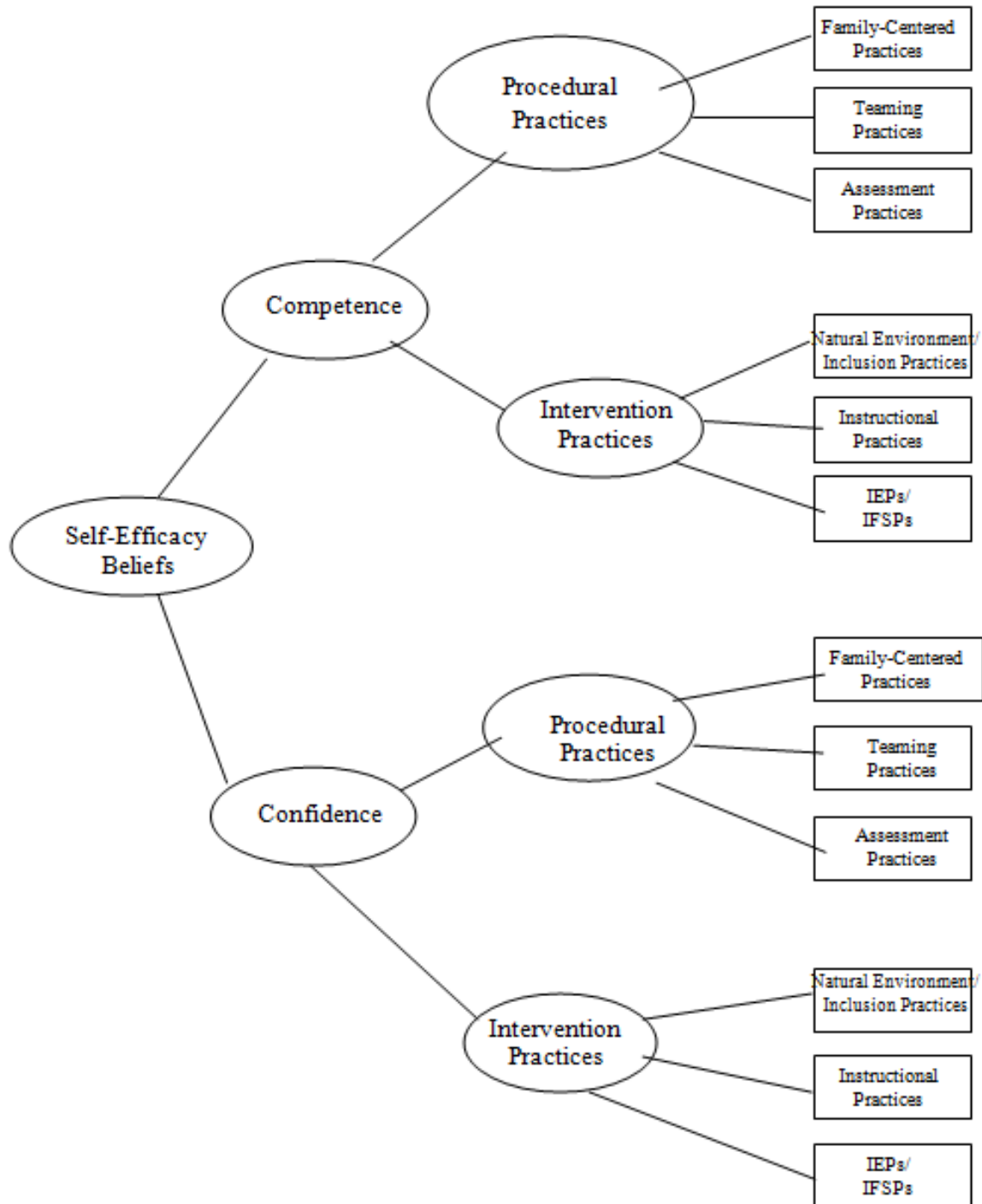


Figure 1. Confirmatory factor analysis model for testing the fit of the hypothesized model to the data.

### *Method of Analysis*

A 6 Between Discipline (Special Education vs. Early Childhood Education vs. Early Childhood Special Education vs. Speech Language Pathology vs. Occupational or Physical Therapy vs. Psychology or Social Work) X 2 Between Type of Program (Early Intervention vs. Preschool Special Education) X 2 Within Type of Practitioner Capability (Confidence vs. Competence) X 2 Within Type of Practice (Procedural vs. Intervention) ANOVA with the subscale practices nested within both the type of capability and type of practice factors was used to analyze this data. The research design is shown graphically in Figure 2. The dependent measures were the sum of the two ratings of each of the six subscale practices (family-centered practices, IFSPs/IEPs, teaming and collaboration, etc.), one for competence and one for confidence. The scores could range from zero (0) to 12 for any one subscale. Cohen's *d* effect sizes were used to compare the differences between the practitioners' competence and confidence for both the main and interaction effects.

## Results

### *Main Effects*

The ANOVA produced main effects for type of capability,  $F(1, 1884) = 2039.00, p < .0001$  and type of practice,  $F(1, 1884) = 215.05, p < .0001$ . The former showed that the practitioners' considered themselves more confident ( $M = 8.76, SD = 2.01$ ) than competent ( $M = 7.60, SD = 2.15$ ) in using the six different kinds of practices,  $d = .56$ . The latter showed that the practitioners assessed themselves more similar than different in terms of their capabilities on the procedural ( $M = 8.35, SD = 2.09$ ) compared to the intervention ( $M = 7.01, SD = 2.21$ ) practices,  $d = .16$ .

### *Interaction Effects*

The main effects for both type of capability and type of practice were qualified by a type of capability x type of practice interaction,  $F(1, 1884) = 250.74, p < .0001$ . The interaction is shown in Figure 3. For both types of practices, the practitioners judged themselves as more confident compared to competent, where the largest difference in the mean scores was for the intervention practices,  $d = .76$  vs.  $d = .36$ .

The main effect for type of capability was qualified by a type of capability x discipline interaction,  $F(5, 1884) = 3.44, p < .01$ . This interaction is shown in Figure 4 in terms of the differences in the sizes of effects between the two types of capabilities for each discipline. The practitioners, regardless of discipline, in every case considered themselves more confident than competent in using the six practices. The sizes of effects for the differences in the confidence and competence mean scores were the largest for the speech and language pathologists ( $d = .61$ ), special educators ( $d = .59$ ), and occupational and physical therapists ( $d = .58$ ), and smallest for the psychologists and social workers ( $d = .42$ ).

| Between Factors                   |              | Within Factors       |    |    |                        |    |    |                      |    |                        |    |    |    |
|-----------------------------------|--------------|----------------------|----|----|------------------------|----|----|----------------------|----|------------------------|----|----|----|
|                                   |              | Confidence           |    |    |                        |    |    | Competence           |    |                        |    |    |    |
|                                   |              | Procedural Practices |    |    | Intervention Practices |    |    | Procedural Practices |    | Intervention Practices |    |    |    |
| Discipline                        | Program Type | FC                   | TP | AP | NE                     | TP | IP | FC                   | TP | AP                     | NE | TP | IP |
| Special Education                 | Part C       |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
|                                   | Part B (619) |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
| Early Childhood Education         | Part C       |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
|                                   | Part B (619) |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
| Early Childhood Special Education | Part C       |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
|                                   | Part B (619) |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
| Speech Language Pathology         | Part C       |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
|                                   | Part B (619) |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
| Occupational / Physical Therapy   | Part C       |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
|                                   | Part B (619) |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
| Psychology/ Social Work           | Part C       |                      |    |    |                        |    |    |                      |    |                        |    |    |    |
|                                   | Part B (619) |                      |    |    |                        |    |    |                      |    |                        |    |    |    |

Figure 2. Research design for evaluating the effects of the between and within factors on practitioner confidence and competence. (Note. FC = Family-centered practices, TP = Teaming and collaboration practices, AP = Assessment and evaluation practices, NE = Natural environment and inclusion practices, TP = Instructional and teaching practices, and IP = IFSPs and IEPs.)

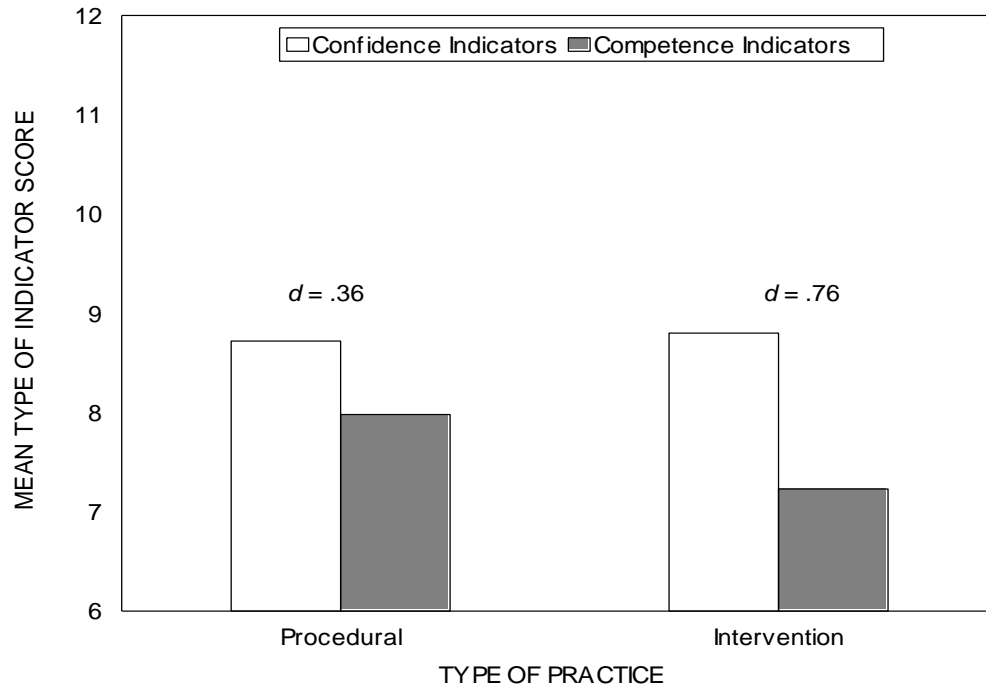


Figure 3. Mean confidence and competence indicator scores for the procedural and intervention practices. (NOTE. *d* = Cohen's *d* effect size).

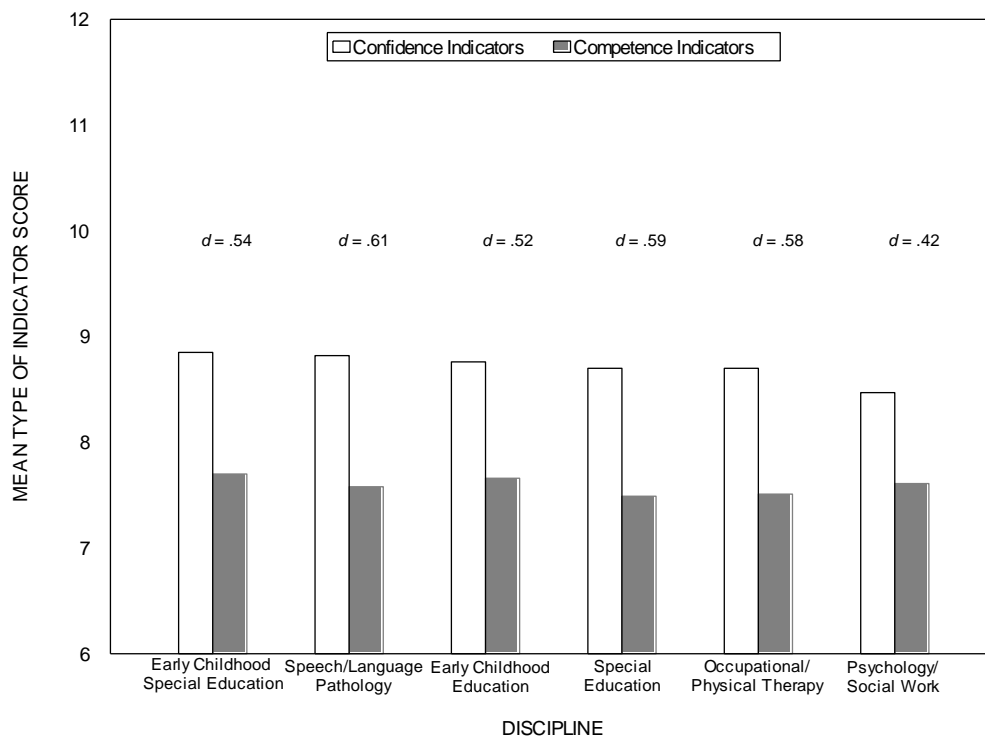


Figure 4. Mean confidence and competence indicator scores for the practitioners from different disciplines.

The main effect for type of practice was qualified by a type of practice x type of program,  $F(1, 1884) = 14.89, p < .0001$ , and a type of practice x discipline,  $F(5, 1884) = 4.57, p < .001$ , interaction. The early intervention practitioners judged themselves as more capable of using the procedural ( $M = 8.38, SD = 2.04$ ) compared to the intervention ( $M = 7.76, SD = 2.19$ ) practices,  $d = .20$ , whereas the preschool special education practitioners judged themselves as equally capable of using the procedural ( $M = 8.30, SD = 2.16$ ) and intervention ( $M = 8.11, SD = 2.24$ ) practices,  $d = .09$ .

Analysis of the type of practice x discipline interaction found that the practitioners from all the disciplines (except speech and language) judged themselves as somewhat more capable of using the procedural compared to the intervention practices,  $ds = .15$  to  $.26$ . The largest differences between the procedural and intervention practices were for the psychologists and social workers ( $d = .26$ ), and the smallest differences were for the early childhood special educators ( $d = .15$ ), early childhood educators ( $d = .16$ ), and occupational and physical therapists ( $d = .17$ ).

The main effects for type of capability and type of practice, and the two-way interactions involving both of these factors, were qualified by a three-way type of capability x type of practice x discipline interaction,  $F(5, 1884) = 3.29, p < .01$ . The nature of this interaction was further qualified by the nested factor results described next.

#### *Nested Effects*

The nested design factors of the ANOVA permitted an assessment of whether the mean competence and confidence scores for the three procedural practices and three intervention practices measures differed from one another, and whether the main effects variables influenced the patterns of relationships and sizes of effects for the differences between the competence and confidence subscale scores. Each of the four nested components of the ANOVA produced significant main effects for the between-subscale score differences,  $F_s(2, 3768) = 91.51$  to  $1169.30, ps < .0001$ . These differences were qualified by discipline x type of subscale nested with type of capability interactions for the procedural practices competence subscale indicators,  $F(10, 3768) = 4.13, p < .001$ , procedural practices confidence subscale indicators,  $F(10, 3768) = 3.23, p < .001$ , intervention practices competence subscale indicators,  $F(10, 3768) = 4.25, p < .0001$ , and intervention practices confidence subscale indicators,  $F(10, 3768) = 5.38, p < .0001$ . The findings from these four sets of analyses are shown in Figures 5 and 6 in terms of the mean subscale scores and sizes of effects for the competence vs. confidence subscale indicators for the procedural and intervention practices respectively.

The results from the analyses of the procedural practices data (Figure 5) indicated that the practitioners from the different disciplines judged themselves as more confident than capable in using the family-centered and assessment and evaluation practices, but somewhat more competent than confident in using the teaming and collaboration practices. The latter is the main source of the smaller effect size for the differences between the competence and confidence indicators for the procedural compared to the intervention practices reported above (Figure 3). The most noteworthy result is the large

discrepancy between the family-centered competence and confidence indicators, which is evident from the large sizes of effects for the between type of capability comparisons.

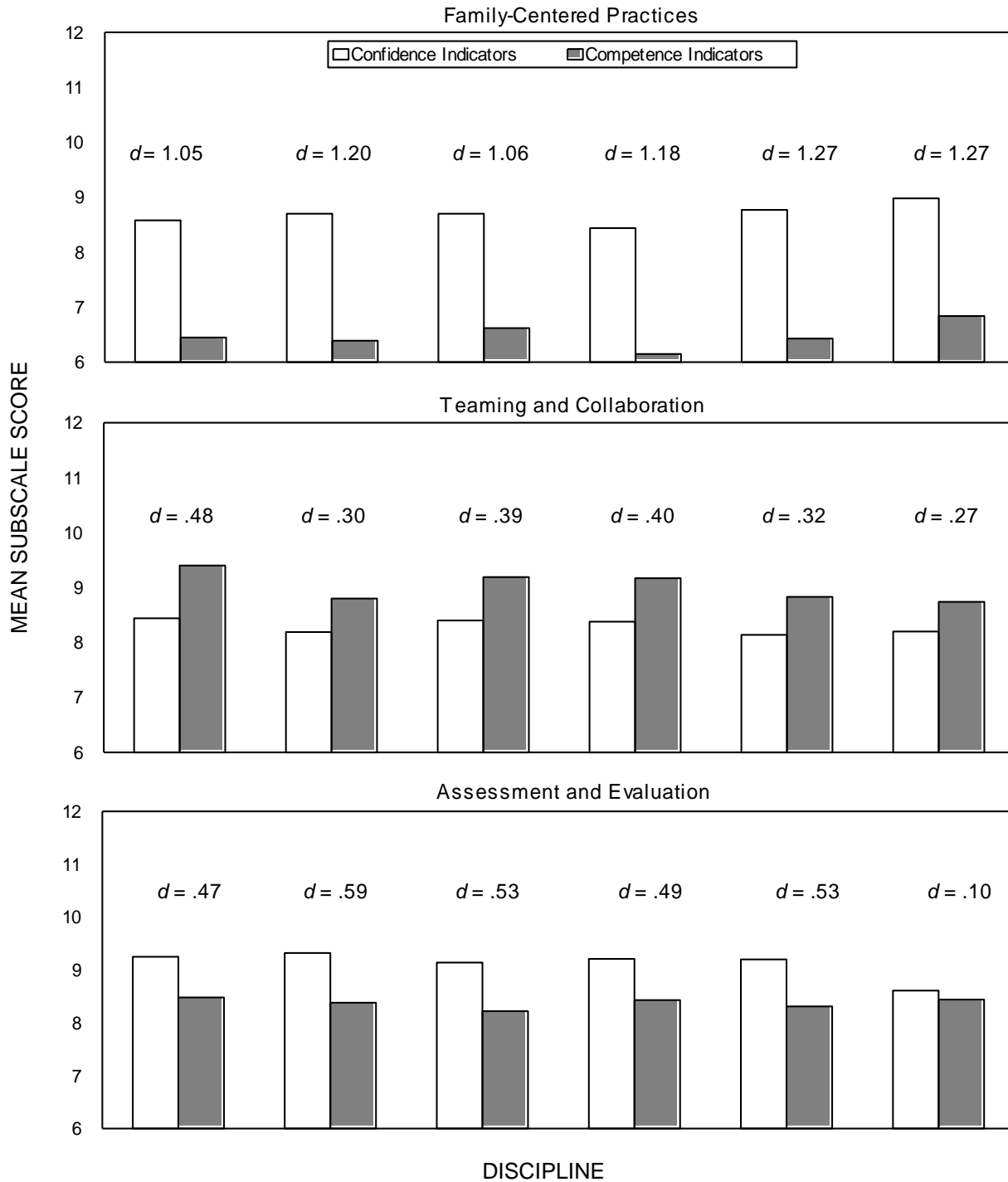


Figure 5. Mean confidence and competence indicator scores for the three different types of procedural practices.

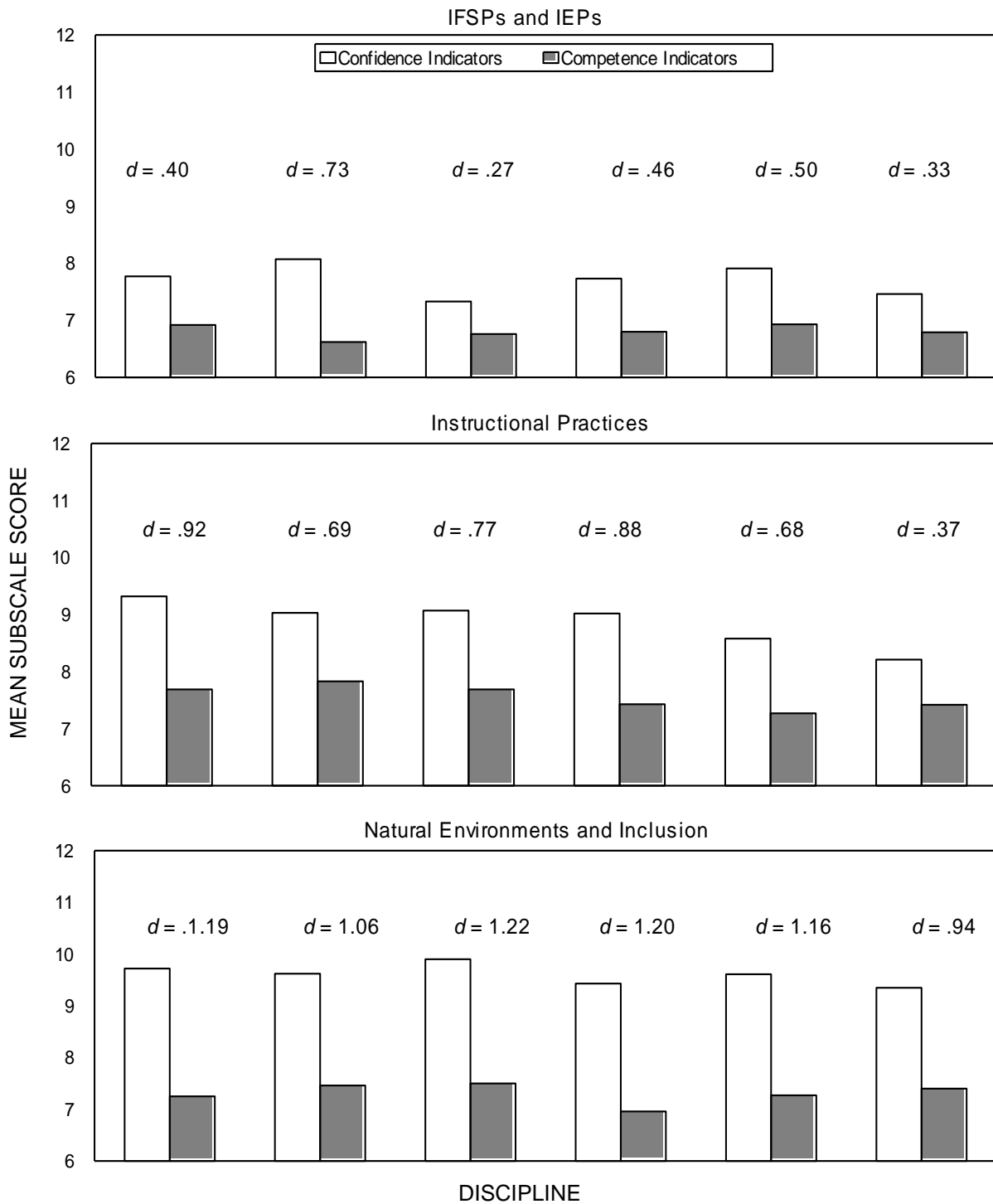


Figure 6. Mean confidence and competence indicator scores for the three different types of intervention practices.

Findings from the analyses of the intervention practices data showed that for all three practices, the practitioners from the different disciplines judged themselves as more confident than competent in using the different types of practices (Figure 6). The differences in the practitioners' self-judgments of competence and confidence, with few exceptions, were very similar regardless of professional discipline. Both the competence and confidence mean scores for the IFSP and IEP practices were especially low, with the practitioners' judgments of their competence noticeably attenuated.

The large sizes of effects for the differences between the natural environment and inclusion subscale competence and confidence practices scores indicate, as was the case of family-centered practices, a large discrepancy in the practitioners' judgments of their abilities to use these kinds of practices. The findings are somewhat surprising given the energy that has been put into providing preservice and inservice training in these areas in the U.S.

### Discussion

Findings reported in this paper showed, for the majority of the early intervention and preschool special education practices constituting the focus of investigation, that the study participants judged themselves as more confident than competent in using both the procedural and intervention practices. This was the case for family-centered practices, assessment and evaluation practices, IFSP and IEP practices, instructional practices, and natural environment and inclusion practices. The one exception was the teaming and collaboration practices where the practitioners considered themselves more competent than confident (see Figure 5). The findings as a whole are consistent with results reported by others where practitioners from different professions tend to judge themselves as more confident than competent in terms of their abilities to practice their crafts (e.g., Abbitt & Klett, 2004; Burgess et al., 2001; Clever et al., 1992; Garbett, 2003)

Placed along a continuum of self-efficacy beliefs, the practitioners in the study judged themselves as most confident and competent in teaming and collaboration practices, and the least confident and competent in natural environment and inclusion, family-centered, and IFSP and IEP practices. The practitioners' judgments of their assessment and evaluation and instructional practices were in-between, but for both practices, they perceived themselves as more confident than competent.

A pattern of findings not readily apparent from those reported in the results section was the overall low levels of self-judgments of practitioner confidence and especially practitioner competence. The average ratings for the confidence indicators translates into using practices in a self-assured manner somewhere between 66% and 75% of the time, whereas the average ratings for the competence indicators translates into using the practices in a competent manner somewhere between 50% and 66% of the time. This can be ascertained by the percentage of participants who rated their confidence and competence a 5 or 6 on the 7-point scale used to obtain respondents' self-judgments. The



discrepancy between the participants reported self-judgments and the highest possible scores is represented in all the figures by the differences in the obtained mean scores and the highest total possible domain and subscale scores (12).

The fact that the self-judgments were so low was somewhat unexpected because research indicates that people in general and professionals more specifically tend to overestimate their confidence and competence (Dunning, Heath, & Suls, 2004; Dunning, Johnson, Ehrlinger, & Kruger, 2003; Ehrlinger & Dunning, 2003; Kruger & Dunning, 1999). The reasons why the early childhood practitioners in this study had such low self-judgments are not readily apparent, which indicates a need to further investigate the factors accounting for variations in the participants self-judgments. This constitutes a focus of the use of the confidence and competence scale in other studies that we are conducting.

A secondary purpose of the study was to determine if the confidence and competence scale was sensitive in terms of detecting differences in self-efficacy beliefs. The scale was found sensitive for detecting differences according to type of program (early intervention vs. preschool special education), type of self-efficacy belief (confidence vs. competence), discipline (education, therapy, social work/psychology), and type of efficacy appraisals for the procedural compared to intervention practices (family-centered, teaming and collaboration, IFSPs/IEPs, etc.). The findings are especially encouraging, and further scale analysis should result in an even more sensitive instrument for measuring early childhood practitioner confidence and competence. For example, the overall patterns of results for the procedural and intervention practices suggest that competence and competence may constitute a hierarchical model which could be determined by Rasch scale analysis (Bond & Fox, 2007; Smith & Smith, 2004). This type of analysis is planned as part of further psychometric evaluations of our newly developed scale.

There is at least one methodological concern that needs to be mentioned that may have contributed, in part, to the study results. The scale used to measure confidence and competence was developed specifically for this study, and although the psychometric analyses completed to date generally produced acceptable scale indices, further work needs to be done to establish the equivalency of the scale items measuring the same construct (Kline, 2000). If the different indicators for the same practice are found to be scaled the same, for example by Rasch modeling, the findings would in fact represent real or true differences in confidence and competence efficacy beliefs. If they are not, further scale analysis would need to be conducted to determine which items would need to be eliminated or rewritten. The results from our study, therefore, should be considered preliminary rather than definitive.

We conclude by noting the fact that a complete understanding of early intervention practitioner self-efficacy beliefs needs to be placed in the context of the kinds of experiences and conditions that either positively or negatively influence self-efficacy beliefs (e.g., Mathieu, Martineau, & Tannenbaum, 1993; Romi & Leyser, 2006) and how

either strengthened or weakened self-efficacy beliefs in turn influence adoption and use of early childhood practices (Sugawara et al., 1998; Wing, 1989). Self-efficacy beliefs need to be further understood in terms of how experiences such as preservice and inservice training (Bruder & Dunst, 2005; Bruder & Stayton, 2006) influences belief appraisals, how belief appraisals influence practices, and how the outcomes and consequences of those practices contribute to the development of stronger self-efficacy beliefs (e.g., Dunst et al., in preparation; Ellis, 1998; McMullen, 1998). Therefore, a better appreciation of the determinants and consequences of self-efficacy beliefs is necessary to have a more complete understanding of the complex relationships that exist among the different factors influencing and influenced by practitioner confidence and competence beliefs (Bandura, 1997; Maddux, 1995).

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