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Running Head: PARTICIPATION-BASED PRACTICES

Beliefs about Participation-Based Practices in Early Intervention

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Abstract

Researchers have noted divergent findings with respect to the relationships of practitioners' beliefs and their implementation of recommended practices. With Q-sort methods, this study examined practitioners' beliefs about practices in early intervention with samples of current practitioners (n = 211) and preservice students (n = 142). Findings indicated that practitioners rated participation-based practices as less strongly held beliefs when compared with several other early intervention practices, and students' responses revealed beliefs that were in contrast with participation-based beliefs. In addition, results showed that practitioners' beliefs were more similar to respondents from institutions of higher education than were the preservice students.

KEY WORDS: recommended practices, early intervention, practitioners' beliefs, participation-based intervention

Beliefs about Participation-Based Practices in Early Intervention

According to the Division of Early Childhood (DEC), three principles have driven early intervention: (a) “respect for all children and families,” (b) “high quality, comprehensive, coordinated and family-centered services and supports” and (c) “the right to participate actively and within their families and communities” (Sandall, McLean, Santos, & Smith, 2005, p. 21-24). Several approaches for providing recommended early intervention practices, which encompass these three principles, have included models known as “routines-based intervention” (e.g., McWilliam & Scott, 2001), “family guided routines-based intervention” (e.g., Cripe & Venn, 1997; Woods, Kashinath, & Goldstein, 2004), “activity-based intervention” (e.g., Pretti-Frontczak & Bricker, 2004; Valvano, 2004), “learning opportunities” (e.g., Dunst, 2001; Dunst, Bruder, Trivette, Raab, & McLean, 2001; Dunst, Hamby, Trivette, Raab, & Bruder, 2000), and “participation-based services” (e.g., Campbell, 2004; Campbell & Sawyer, 2007). Although differing somewhat in specific components and emphasis, proponents of early intervention models have stressed (a) the pivotal role of families as “teachers” of their children and practitioners role as facilitators and teachers of both families and their children; and (b) the use of common activities and routines as contexts for children’s learning (e.g., Chai, Zhang, & Bisberg, 2006; Stremel & Campbell, 2007).

Practitioners who have employed early intervention services with a family-centered emphasis, view those services as family-focused, rather than child-focused in nature (cf. Trivette & Dunst, 2005). In addition, early interventionists have used procedures that support their professional roles as providing families with resources, knowledge, and strategies so that family members are better able to meet their children’s developmental needs (cf. Bruder & Dunst, 2000). Within practitioners’ roles with families, services have been structured so that

interventionists work with families, and then family members employ the strategies directly with the children (cf. McCollum & Yates, 1994).

Natural environments, as defined in IDEA Part C regulations, have been settings in which children without developmental delays spend time (34 CFR 303.18; DEC/NAEYC, 2009). The concept of natural environments has been expanded beyond the mere concept of location only to include the common activities and routines which occur within children's homes and their schools and communities (Workgroup on Principles and Practices in Natural Environments, 2007a, 2007b). For example, the notion of "home setting" has been expanded to include family routines such as bathes, morning routines, and mealtimes. Similarly, child care settings have included typical activities and routines such as large groups, storybook readings, transitions, and snack times (e.g., Stremel & Campbell, 2007). Embedding interventions into daily routines and activities has allowed practitioners to intervene within common contexts and provide increased opportunities for children to learn and practice important skills in situations where they are functional and, ultimately, most needed (cf. Dunst et al., 2000). When practitioners intervene within activities and routines of home, school, and community settings, materials found in those circumstances (e.g., family-owned toys, cereals at snack, menus in restaurants) should be used (McWilliam, 2008). The primary purpose and philosophy of the participation-based approach has been to promote children's participation in family and community activities and routines. Specifically, practitioners implement intervention with children through their direct efforts with caregivers to teach them to use two primary strategies to promote participation and learning: (a) embedding individualized learning goals within the families' and children's activities and routines and (b) adapting materials and activities and routines (Campbell & Sawyer, 2007; for practitioners' and consultants' examples see Milbourne & Campbell, 2007).

Recommended practices in early intervention have been developed and validated through the consensus of experts (Odom & McLean, 1993, 1996; Sandall et al., 2005; Workgroup on Principles and Practices in Natural Environments, 2007a, 2007b). However, relatively limited information has been assembled about current practitioners' beliefs concerning adoption of these recommended practices. Such work is critical because practitioners' beliefs have been identified as a potential influence on whether they use or adopt practices (e.g., Lieber et al., 1998; McWilliam, 1999). When cognitive dissonance exists between personal beliefs and particular professional practices, implementation of those practices may be much less likely to occur.

Beliefs and Practices

Many practitioners have expressed beliefs that align with recommended approaches to early intervention (e.g., Bjorck-Akesson & Granlund, 1995; King et al., 1998; McWilliam et al., 2000; O'Neil & Palisano, 2000). For example, McWilliam and colleagues (1998) interviewed six practitioners who reported philosophies consistent with family-centered principles, such as expressing values of orienting services to the whole family, and being positive, responsive, sensitive, and friendly to families. With respect to components of participation-based practices, interviewees discussed understanding the relationship of child-level skills within the context of children's participation in their communities. In another effort to better understand practitioners' beliefs about implementing practices promoting family participation in services, Fleming, Sawyer, and Campbell (2009) conducted 31 interviews with multidisciplinary practitioners (i.e., occupational therapists, physical therapists, speech language pathologists, and special instructors). Fleming and colleagues noted that interventionists valued and strove for active family member participation in visits. In addition, practitioners discussed professional roles as coaches and facilitators for adult-child teaching and learning opportunities, rather than being

directly “hands-on” with children themselves. The practitioners also described the importance of using families’ normally occurring routines and activities as learning contexts for children, and they provided explicit examples of how they had attempted to do so with families.

Although interventionists’ beliefs about participation-based practices have been reported, researchers have shown that practitioners do not necessarily conduct their day-to-day practices in a manner that reflects those beliefs (e.g., Dunst, Trivette et al., 2001; McWilliam, 2000). For example, several investigators have found that some interventionists neither facilitate caregiver-child teaching interactions nor incorporate interventions within families’ daily activities and routines (e.g., Campbell & Sawyer, 2007; McBride & Peterson, 1997; McWilliam et al., 1998; Peterson, Luze, Eshbaugh, Jeon, & Kantz, 2007; Wilcox & Lamorey, 2004). Rather, researchers have reported that practitioners directly taught children with the caregivers often relegated to observers of teacher-child interactions. Our recent unpublished analyses of approximately 400 videotaped early intervention visits confirmed that although caregivers may participate in early intervention (approximately 70% time), few interventionists engaged in explicit teaching interactions with caregivers. Moreover, only 15% of videotaped family visits showed practitioners intentionally teaching caregivers how to intervene with the children (i.e., the primary role of practitioners was to engage directly with children) (Sawyer & Campbell, 2009). In addition, approximately 33% of videotaped family visits revealed interventionists providing services that were decontextualized from the families’ daily activities and routines (i.e., practitioners determined and implemented teaching and learning opportunities that were not those which families typically engaged in; Sawyer & Campbell, 2009).

Measurement of Beliefs

Because individuals' behaviors have been affected by their beliefs (e.g., Calderhead, 1996; Pajares, 1992), accurately assessing practitioners' current professional attitudes might be important in promoting and supporting the use of recommended practices. Nevertheless, professional beliefs have been notoriously difficult to measure (cf. Calderhead, 1996) and educational researchers have discussed contradictory findings in regard to the relation between teachers' beliefs and their practices. On the one hand, investigators have demonstrated that teachers' self-reported beliefs match the practices they use in the classroom (e.g., Charlesworth, Hart, Burts, Mosley, & Fleege, 1993; Oakes & Caruso, 1990; Richardson, Anders, Tidwell, & Lloyd, 1991; Stipek & Byler, 1997). On the other hand, investigators have reported no relation between practitioners' beliefs and practices (e.g., Simmons et al, 1999; Wilcox-Herzog, 2003). Given these divergent findings and the importance of the issue, additional investigations of the relationship of practitioners' beliefs have been warranted.

The overall purpose of our study was to explore beliefs about participation-based practices in early intervention. Specifically, we examined practitioners' and students' beliefs about participation-based practice and compared each group's responses to those of a sample of higher education faculty who had an established expertise in early intervention (i.e., "expert opinions"). Beliefs for both practitioners and students were analyzed to determine the extent to which factors such as professional experience, educational attainment, and anticipated or established discipline membership related to belief statements. We predicted that (a) practitioners and students differ in their prioritization of beliefs about participation-based practices when compared to "expert opinions," and (b) the belief prioritization of practitioners with more experience and higher levels of education will be similar to "expert opinion."

Method

Participants

Three hundred ninety-three individuals who were members of the three groups: (a) 15 higher education faculty members with an expertise in early intervention; (b) 211 early intervention practitioners; and (c) 142 graduate students, participated in the study. Twenty-five participants (i.e., 21 practitioners and 4 students) were excluded from analyses for their failure to complete the Q-sort methods correctly (i.e., placing more than four cards underneath one anchor or error in recording answers, such as having one statement card under more than one anchor). Hence, multidisciplinary respondents participated in the investigation and they included members of the following disciplines: (a) occupational therapy, (b) physical therapy, (c) speech language pathologists, and (d) special instructors. Table 1 provides the demographic information for our sample of convenience for higher education exemplar group and the 353 practitioners and graduate students. Q-sorts were labeled with a unique identifier, thus retaining confidentiality of all the participants.

Faculty expert opinion group. We solicited professors at 10 geographically local universities with research or teaching interest in early intervention in appropriate degree programs (i.e., early childhood special education, occupational therapy, physical therapy, speech-language pathology). We contacted 20 higher education faculty members through electronic mail. Fifteen faculty members completed the Q-sort (75% response rate), 4 professors did not respond to the invitation, and 1 chose not to participate. We then mailed Q-sort materials with directions, statement cards, anchor cards, recording sheets, and return envelopes to faculty members who agreed to participate.

Graduate student group. We recruited graduate students through the higher education faculty participants. We sent each of the participating higher education faculty members an

electronic mail request for student participation with the instructions to forward to students who had an interest in early intervention or experience in early intervention. The higher education faculty members then forwarded the electronic mail request for participation to students they deemed appropriate. Finally, we mailed the Q-sort materials to students who expressed interest in participating in the study. Given that the participating higher education faculty members sent out the electronic mail request, we were not able to determine the actual response rate for students. Participating students received gift cards for local retailers.

Practitioner group. We recruited practitioners during their participation in local professional development opportunities that we performed. One hundred-sixty practitioners completed the Q-sort while they attended professional development courses, which focused on providing high-quality home visits. As part of the professional development activities, we had practitioners complete the Q-sort *prior* to discussion of any training content. In addition, 24 practitioners completed the Q-sort while in attendance at a local professional development conference. The Q-sort was a voluntary activity that was available at the conference registration table. We entered the respondents into a raffle to win a gift card. Finally, we recruited 27 practitioners through electronic mail sent to the supervisors of local early intervention agencies. The early intervention supervisors forwarded our solicitation to staff members or posted the study invitation for their personnel. We then mailed a packet of Q-sort materials to individuals who expressed interest in participating in the study. The 27 practitioners who completed the Q-sort through the mailings received gift cards. Again, because the invitation was not sent directly by us but was forwarded by early intervention supervisors, we were not able to determine the response rate of these practitioners.

Development and Pilot Test of an Early Intervention Q-Sort Measure

The development of the Q-sort we employed was based on a “quasi-naturalistic Q-sample approach,” a method that uses external sources to develop the statement cards containing information about early intervention practices (McKeown & Thomas, 1988). We developed the early intervention Q-sort and first reported its use in Campbell and Sawyer (2009). Campbell and Sawyer (2009) categorized eight statement cards as participation-based practices. Upon subsequent reflection and with our current analyses, we broadened the parameters of participation-based services to also include other contextual circumstances of early intervention services (i.e., locations, the use of materials, and inclusion of siblings). To this end, we included four additional statement cards in the category of participation-based services (i.e., $8 + 4 = 12$ statement cards). In addition to the 12 participation-based practices, we selected 8 other recommended early intervention practices, which we deemed relevant to practitioners. Table 2 delineates whether the statement cards represents participation-based practices and further indicates which eight (of the 12) statements cards were classified as participation-based in Campbell and Sawyer (2009).

For our current study, participants completed a single 20-item Q-sort designed to assess how beliefs about participation-based practices were prioritized in comparison to eight other early intervention practices. Specifically, 12 statement cards were developed which focused on the two foundations of participation-based service: (a) practitioners’ roles as families’ facilitators and teachers, which also includes respondents’ beliefs about families; and (b) practitioners’ beliefs about incorporating interventions into families’ common activities and routines.

We initially examined the recommended practices literature (e.g., Sandall et al., 2005; Sheldon, Jeppson, & Johnson, 1987; Workgroup on Principles and Practices in Natural Environments, 2007a, 2007b) as well as empirical studies on early intervention beliefs and

practices (e.g., Campbell & Sawyer, 2007; McBride & Peterson, 1997; McWilliam et al., 1998; Peterson et al., 2007; Wilcox & Lamorey, 2004) to identify relevant statements. We pilot tested the 20 item Q-sort using a convenience sample of 36 individuals whose professional roles were to supervise practitioners. We asked these supervisors to equally sort the 20 cards beneath the 5 anchors and to identify any cards with confusing wording or meaning. We used histograms to visually assess the dispersion of statement cards and determine if any statement cards did not roughly follow a normal distribution. All 20 of the cards were adequately distributed. Two cards were reworded slightly based on participants' reported confusion with the wording. To assess test-retest reliability, a convenience sample of 36 respondents completed the Q-sort twice within a 15-month interval. These 36 practitioners were drawn from a separate sample of practitioners who participated in later professional development courses conducted by the authors. The test-retest reliability, based on Spearman correlation coefficients, ranged from .35 - .93, with a mean of .70 and standard deviation of .14. Sixty-one percent (61%) of the 36 practitioners were correlated at .70 or higher.

Study Procedures

We instructed participants to sort the 20 statements on a continuum of 5 anchors, ranging from (a) *strongly disagree*, (b) *disagree*, (c) *neither agree nor disagree*, (d) *agree*, and (e) *strongly agree*. We informed respondents that the placement of the statement cards did not indicate absolute agreement or disagreement, but agreement or disagreement *in relation to other statements*. For example, a participant who placed a statement card reading “*EI providers should include other children who are present during the session*” under the agree anchor and a statement card reading “*All families have the knowledge to select strategies to help their children learn*” under the neither agree nor disagree anchor was indicating that the statement card about

including other children was more characteristic of their belief system than the statement card about all families having the capacity to help their children learn. We required respondents to sort the 20 statement cards such that 4 were placed under each of the 5 anchor cards and participants then recorded their answers onto a response sheet. Although other Q-sorts have allowed fewer cards in the extreme categories (e.g., McKeown & Thomas, 1988; Waters & Deane, 1985), we employed equal numbers of statements per anchor to simplify task completion, a procedure that has been described as statistically inconsequential (cf. McKeown & Thomas, 1988).

Data Aggregation and Analyses

Prior to respondent sorting, we assigned each statement card a value ranging from 1 to 5 (1 = *strongly disagree*; 5 = *strongly agree*). Following respondent sorting and data aggregation for each item and respondent, we employed two methods of analysis: (a) a summative method, and (b) a criterion method for subsequent analyses. We used the summative method to examine practitioners' and preservice students' beliefs about recommended practices by determining the rank ordering for each of the 20 statements for each respondent (Burt, 1940; Block, 1961). Specifically, we performed the following steps: (a) a data matrix was developed with each column representing a respondent (i.e., practitioner or student) and each row corresponded to a statement (i.e., statements 1 through 20); (b) values were summed across the respondents (i.e., columns) for each item; and (c) this sum was used to rank order each Q-sort statement relative to the other items. Hence, card statements with sums closer to the initial ranking, especially rankings 1 through 4, indicated relatively positive and strongly held beliefs. In contrast, card statements with higher rankings closer to 20, especially those from 17 through 20, reflected relatively negative and strongly held beliefs.

We used the criterion method to examine the extent to which practitioner and student respondents differed in their rankings of statements when compared to higher education faculty participants. Hence, we established with the criterion method an “expert opinion” exemplar to which other respondents were compared (Block, 1961; Waters & Deane, 1985). The summative method was also employed to establish an “expert opinion” of the rankings reflecting the responses of 15 higher education faculty members. Following the establishment of the criterion or “expert opinion” exemplar sort, Spearman correlation coefficients were computed between practitioners’ or students’ Q-sort rankings and the higher education rankings.

The Spearman correlation was standardized to a Fisher z and used in subsequent t -tests and ANOVAs to determine whether demographic variables were associated with the degree of relatedness to the higher education exemplar sort. With power of .80 and alpha of .05, the sample sizes of 211 practitioners and 142 preservice students were sufficient to provide adequate power for examining the contribution of demographic variables to the degree of relatedness to the sample of higher education faculty members. Initially, in our analyses we considered two demographic variables for both practitioners and students: (a) professional discipline (i.e., occupational therapy, physical therapy, speech-language pathology, special instruction/teacher); and (b) ethnicity (dichotomous for minority). In addition for practitioners, we analyzed the (a) level of education (dichotomous for graduate degree); (b) hours worked in early intervention per week (10 or less, 11-30, more than 30); (c) amount of experience in discipline (less than 5 years, 5-10 years, more than 10 years); (d) amount of experience in early intervention (less than 3 years, 3-6 years, more than 6 years); and (e) employment status (independent contractor, part-time staff, full-time staff). For students, we also examined their interest in working in early intervention (yes/no) upon graduation from their credentialed program.

Results

Prioritization of Participants' Beliefs (Summative Method)

Participants from the three groups rank ordered statement cards into the most strongly agree (i.e., statements 1 - 4) and mostly strongly disagree (i.e., statements 17 - 20). Twelve out of 20 statement cards focused on participation-based services. Table 2 shows the 20 statements by whether they were participation-based statements or the eight other recommended early intervention practices. In addition, practitioners, students, and the higher education faculty members' rankings are delineated.

Table 3 lists the statement cards that were most strongly disagreed and agreed upon by the higher education faculty members and indicates the percentage of faculty members who sorted the statement cards into the belief category (i.e., *strong agreement* or *strong disagreement*) and the percentage who sorted the statement cards into an adjacent belief category (i.e., *strongly agree* and *agree*; *strongly disagree* and *disagree*). Our results demonstrated a relatively high level of consistency across the higher education faculty members in the placement of statement cards, with the vast majority of faculty members sorting the statement cards into the same or adjacent belief categories (i.e., interrater agreement for within one category ranged from 73 - 93%).

Faculty members' beliefs about participation-based services. The higher education faculty members indicated strong beliefs about three participation-based statements, which position families, not providers, at the center of early intervention services and identify the parents as teachers of their children. Specifically, they *strongly agreed* that (a) *EI services should be targeted to the developmental concerns which the family, not the provider, feels are most important*. In addition, they showed strong negative beliefs about two statements: (a) *Families*

who do not do follow-up activities are less invested in their children; and (b) When EI providers teach parents skills to use with their children, parents feel they are not being viewed as capable of meeting their child's needs. The higher education faculty members did not show strong beliefs opposed to participation-based services.

Practitioners' and students' beliefs about participation-based services. Practitioners' showed strong beliefs about two participation-based service related statements, which focus on the parents' primary role in the early intervention and natural environments. Specifically, they believed strongly that *When families do not participate in a session, it is the EI provider's responsibility to find a way to engage the parent.* In addition, they *strongly disagreed* that: *EI services should always be provided in the home.* Students did not rank their beliefs in favor of any participation-based cards. Whereas faculty members did not show strongly held negative beliefs about participation-based statements, students and practitioners did. Specifically, practitioners and students *strongly disagreed* with a statement card focused on the natural environments: *There are no circumstances where it is acceptable for providers to bring in their own materials.* Students also indicated strong beliefs opposed to two statements about participation-based services, which relate to provider-directed intervention with children rather than a focus on the providers teaching parents: (a) *It is acceptable for providers to do hands-on intervention when families want the provider to work directly with the child;* and (b) *The role of the EI providers should be to train, teach, or coach the parents-not work directly with the child.*

Beliefs about other early intervention practices by all respondents. Practitioners, students, and the higher education faculty members placed fewer participation-based services statement cards under the *strongly agree* and *strongly disagree* anchors than they did cards depicting the eight other early intervention practices. All three groups *strongly held* beliefs about

three other early intervention practices. All participant groups believed strongly in the importance of (a) progress monitoring (most strongly held belief) and (b) children's engagement during family visits. In addition, the three groups strongly disagreed that there were no interdisciplinary collaborative opportunities when services are provided by independent contractors.

Four other statement cards were ranked as strongly held beliefs by one or two of the groups, but not all three. Both the higher education faculty members and practitioners strongly agreed with the necessity for service coordinators to provide further assistance to families rather than merely written resources. Practitioners and students strongly disagreed that practitioners' competence is related more to their training in higher education than on-the-job experience. Only students had a strong belief that early intervention sessions should be oriented to what children need to learn how to do. The higher education group strongly disagreed that all practitioners, regardless of their disciplines, have the necessary skills to work effectively with all infants and toddlers.

Results summary. Our findings showed that participation-based beliefs are less strongly-held beliefs relative to beliefs about eight other early intervention practices. A higher number of statements related to participation-based service were included in the Q-sort but were less frequently placed under the *strongly agree* or *strongly disagree* anchors by the higher education faculty member and practitioner respondents. In fact, students appeared to have strongly held beliefs that were in contrast with participation-based service.

Comparison of Practitioners and Students to Higher Education Exemplar Sort (Criterion Method)

We performed independent sample *t*-tests using the Fisher *z* scores, to determine if there was a statistical difference between the practitioner and student respondents' rankings in the relatedness of those ratings to the higher education rankings. Practitioners' rankings were statistically different from students' [$t(351) = 2.72, p < 0.01$], indicating that practitioners sorted their statement cards more similarly to the higher education faculty members than did students. In addition, for both the student and practitioner groups, we computed *t*-tests and one-way ANOVAs with Scheffé post hoc tests to determine whether certain demographic characteristics were related to the degree of similarity between students' and practitioners' responses to the higher education exemplar.

Based on ethnicity (dichotomous for minority status), only practitioners' results were related to the responses from the higher education group [$t(209) = 2.50, p = 0.01$] and ethnicity of students was not significant. Specifically, practitioners who were not minority status were more similar to the higher education faculty members' responses. In addition, preservice students who were interested in working in early intervention following graduation were more highly related to the higher education faculty raters than students who were not interested in working in early intervention [$t(117) = -2.10, p = 0.04$]. For practitioners, the number of hours per week of work in early intervention was related to degree of relatedness to the higher education faculty members [$f(2, 107) = 3.33, p = .04$]; however, the Scheffé post-hoc analysis did not reveal statistical differences between the 3 time groupings (i.e., less than 10 hours, 11-30, more than 30). Professional discipline was not significant for practitioners or students. Moreover, for practitioners, no statistical differences emerged for (a) experience in discipline, (b) experience in early intervention, education (dichotomous for graduate degree), or (c) employment status (independent contractor, part-time staff, full-time staff).

Discussion

Our primary interest was to better understand respondents' beliefs about participation-based services and eight other early intervention practices. We were especially interested in two key strategies: (a) practitioners teaching family members, rather than children directly; and (b) practitioners embedding intervention into the family member's naturally occurring activities and routines. Two main findings emerged from our study: (a) all participants were more positively inclined toward the eight early intervention practices than with 12 participation-based practices; and (b) practitioners' beliefs were more similar to higher education exemplar sort than are students.

Participants were more positively inclined toward other early intervention practices than with participation-based practices. In addition, student respondents indicated relatively strong beliefs opposed to participation-based practices. That respondents did not prioritize statements reflecting participation-based services was not surprising in light of existing research in which investigators have shown that early intervention services are predominantly directed by practitioners to children and that they do not consistently embed interventions into naturally-occurring activities and routines (e.g., Campbell & Sawyer, 2007; Campbell & Sawyer, 2009; McBride & Peterson, 1997; Peterson, 2004; Wilcox & Lamorey, 2004). We found it interesting that none of the three groups *strongly agreed* with the statement about children's participation in the families' activities and routines as being more important than learning developmental skills. Nevertheless, children's participation and engagement in activities and routines has long been a fundamental recommended practice as well as an evidence based strategy to enhance children's development. We were somewhat encouraged that practitioners *strongly agreed* that it is their

professional responsibility for engaging family members in interventions, which is a necessary but not sufficient condition for practitioner-based services to be effective.

Early intervention continues to be a challenging field with a number of recommended practices that practitioners should carefully consider. All three groups, practitioners, students, and higher education faculty members, strongly believed in the critical practices of progress monitoring and teamwork and collaboration between providers. Among all respondents progress monitoring was the most strongly held belief. Data collection and progress monitoring have been critical for several reasons, such as (a) confirmation of initial evaluation findings, (b) assessment of children's progress across time, and (c) use of findings to inform intervention practices' effectiveness (Wolery, 2004, 2005). Respondents also strongly believed and appeared to reject the notion that opportunities *do not exist* in early intervention for teamwork and collaboration. Professional collaboration strategies have been viewed as critical because children's teaching and learning opportunities should be contextualized and not domain specific (cf. McGonigel, Woodruff, & Roszmann-Millican, 1994). Indeed, contemporary models of collaboration have long included transdisciplinary services with role release to better address children's developmental needs in functional contexts (e.g., Bruder, 1997).

Limitations

Our study had at least four limitations. First, our descriptive efforts were with a modest sample of convenience with three groups. Specifically, the sample was exclusively female and with respect to higher education faculty members and students, almost exclusively European American. In addition, the vast majority of the practitioners were required to complete the Q-sort during a mandatory professional development course, whereas higher education faculty members' and students' participation was voluntary. Obviously, students and higher education

faculty members who chose to participate may hold different beliefs than those who declined to participate (i.e., nonresponse bias). Our findings should be interpreted with caution and more diverse samples need to be recruited and carefully examined before generalizations to the field should be made. Second, we did not directly collect nor analyze students' information about their courses and field experiences in early intervention. Specifically, the participating higher education faculty was requested to solicit interest from students who had some early intervention experience. Nevertheless, we do not know the nature or extent of those of experiences.

Additional information about students' exposure to early intervention might permit a better understanding of future findings about beliefs. Third, more than half of the statement cards reflected the participation-based services, the area in which we were most interested. The eight other statement cards may not represent other areas in which participants hold strong positive and negative convictions about early intervention services. Fourth, because of its ambiguous wording, the statement about *EI services should always be provided in the home* statement card may have been confusing and difficult for respondents to interpret. We developed the statement to convey that natural environments should extend to locations beyond homes, such as community settings. We now recognize that it was possible that practitioners may have interpreted the comparison as being homes versus clinic settings, rather than homes versus community settings. Unfortunately, that interpretation does not reflect a participation-based belief.

Implications for Training and Research

Our results indicate that participants may not hold strong beliefs about participation-based services in relation to eight other early intervention practices. Researchers have also demonstrated that participation-based services are not widely implemented by practitioners (e.g.,

Campbell & Sawyer, 2007; McBride & Peterson, 1997; Wilcox & Lamorey, 2004). To date, the relation between beliefs and day-to-day practices remains unclear. Whereas some researchers have demonstrated that teachers have been more likely to adopt and implement practices that match their beliefs about teaching, other investigators have not replicated this relation (e.g., Oakes & Caruso, 1990; Wilcox-Herzog, 2003). We believe that the relation between beliefs and practices needs to be rigorously explored with additional early intervention practitioners.

Our results and others who are interested in early intervention services have indicated that professional development should emphasize the importance of practitioners' roles as facilitators and teachers of families as well as how best to contextualize early intervention services within families' common activities and routines. Field-based and "real world" learning opportunities which are well-aligned with and linked to early intervention courses, have been recognized as critical in the professional development of early intervention personnel (cf. Miller & Stayton, 2005). We believe that many respondents' strong belief that on-the-job training was more important than formal courses provides important insight into adult learning preferences and training contexts that that may be useful for both preservice and inservice providers of professional development and technical assistance. Effective professional development actively involves participants in learning, practice, and reflection. Specifically, professional development ought to include multiple learning and practice opportunities, and present content to participants in a facilitator-guided fashion (for discussion of a model see Dunst & Trivette, 2009). Furthermore, we believe that professional development should be implemented and evaluated in a manner in which practitioners are afforded opportunities to align their beliefs with recommended practices.

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Table 1

Participant Demographics

	Practitioners (n=211)	Students (n=142)	Expert (n=15)
Discipline			
Physical therapy	12.6%	15.1%	20.0%
Occupational therapy	25.6%	45.3%	20.0%
Speech language pathology	15.6%	30.9%	13.3%
Special instruction	38.2%	7.9%	46.7%
Other	8.0%	0.7%	--
Education			
Associates Degree	3.0%	--	--
Bachelor's Degree	40.4%	96.4%	--
Master's Degree	54.0%	3.6%	26.7%
Doctoral Degree	2.5%	--	73.3%
Gender			
Female	95.0%	93.5%	100%
Male	5.0%	6.5%	--
Ethnicity			
African-American	20.9%	5.8%	--
Hispanic	8.0%	5.1%	--
Asian	1.1%	4.4%	--
Caucasian	69.5%	83.2%	100%
Other	0.5%	1.5%	--
Mean Years of Experience (standard deviation) (Practitioners only question)			
Total	11.34 (9.78)		
Early Intervention	6.40 (5.54)		
Employment Status (Practitioners only question)			
Full-time staff	41.1%		
Part-time staff	10.7%		
Independent Contractor	48.2%		
Interested in Working in Early Intervention (Students Only question)		45.4%	

Table 2

Ranking of Q-sort Statement Cards by Category

Category	Cards	Practitioners (n= 211)	Pre- Service Students (n= 142)	Higher Education Exemplar Sort (n=15)
Participation-Based (i.e., family/practitioner role and embedding intervention into naturally occurring activities/routines)	When families do not participate in a session, it is the EI provider's responsibility to find a way to engage the parent.	3 ^a	6	5
	Families who do not do follow-up activities are less invested in their children.	14	12	20 ^b
	The role of EI providers should be to train, teach, or coach the parents- not work directly with the child.	11	17	8
	The parent's role should be to act as their child's parent, not as their teacher.	15	16	11
	When EI providers teach parents skills to use with their children, parents feel they are not being viewed as capable of meeting their child's needs.	16	13	17 ^b
	The child's participation in family activities/routines is more important than learning developmental skills.	9	10	6
	It is acceptable for providers to do hands-on intervention when families want the provider to work	6	2 ^a	10

Category	Cards	Practitioners (n= 211)	Pre- Service Students (n= 142)	Higher Education Exemplar Sort (n=15)
	directly with the child. All families have the knowledge to select strategies to help their children learn.	10	11	9
	EI services should be targeted to the developmental concerns which the family, not the provider, feels are most important. ¹	5	8	2 ^a
	EI services should always be provided in the home. ¹	18 ^b	14 (tie)	13
	There are no circumstances where it is acceptable for EI providers to bring in their own materials. ¹	20 ^b	20 ^b	16
	EI providers should include other children who are present during a session. ¹	8	7	7
Other Practices	Service coordinators should be the team members who collect all the information about the family's activities/routines.	13	9	15
	In order for families to successfully access resources, service coordinators need to provide more assistance than written information or contact names.	2 ^a	5	4 ^a
	The child's engagement (e.g., interest/happiness) should be of primary	4 ^a	3 ^a	3 ^a

Category	Cards	Practitioners (n= 211)	Pre- Service Students (n= 142)	Higher Education Exemplar Sort (n=15)
	importance in a session.			
	Sessions should be oriented to what the child needs to learn how to do.	7	4	12
	Keeping records of their work with children helps providers make informed decisions about what they are teaching families to do.	1 ^a	1 ^a	1 ^a
	There are no opportunities for teamwork or collaboration among providers when EI services are provided by independent providers.	19 ^b	18 ^b	18 ^b
	All EI providers, regardless of their discipline, have the skills and abilities to work effectively with all infants and toddlers.	12	14 (tie)	19 ^b
	An EI provider's competence is related more to their formal training (e.g., undergraduate /graduate) than to their on-the-job experiences.	17 ^b	19 ^b	14

Note. Number indicates the ranking of statement. Statements ranked 1-4 are most strongly agreed upon (indicated with ^a; 1 reflected most strong agreement) and statements ranked 17-20 are most strongly disagreed upon (indicated with ^b; 20 reflected most strong disagreement).

¹ indicates the four additional statement cards that were classified as participation-based in this article and were not in Campbell and Sawyer, 2009.

Table 3

Fifteen Higher Education Faculty Members' Responses and Most Strongly Held Beliefs

Category	Cards	Card Represent Participation-Based Service?	% of Exact Agreement	% Agreement within 1 Anchor
Strong Disagreement (in order of highest to lowest ranking)	Families who do not do follow-up activities are less invested in their children.	Yes	66.7%	86.7%
	All EI providers, regardless of their discipline, have the skills and abilities to work effectively with all infants and toddlers.	No	66.7%	73.3%
	There are no opportunities for teamwork or collaboration among providers when EI services are provided by independent providers.	No	46.7%	73.3%
	When EI providers teach parents skills to use with their children, parents feel they are not being viewed as capable of meeting their child's needs.	Yes	46.7%	80.0%
Strong Agreement (in order of highest to lowest ranking)	Keeping records of their work with children helps providers make informed decisions	No	73.3%	93.3%

Category	Cards	Card Represent Participation-Based Service?	% of Exact Agreement	% Agreement within 1 Anchor
	about what they are teaching families to do.			
	EI services should be targeted to the developmental concerns which the family, not the provider, feels are most important.	Yes	46.7%	80%
	The child's engagement (e.g., interest/happiness) should be of primary importance in a session.	No	46.7%	80.0%
	In order for families to successfully access resources, service coordinators need to provide more assistance than written information or contact names.	No	53.3%	93.3%

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