Evidence-Informed Early Childhood Intervention Performance Checklists and Practice Guides

Carl J. Dunst
Editor
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Knowledge growth in early intervention and early childhood intervention necessitates both knowledge management and knowledge sharing in ways that increase the likelihood that accumulated knowledge is used to improve the lives of young children and their families. One way in which knowledge management is accomplished is through research reviews of studies of particular types of early childhood practices where the aggregated findings from the studies permit inferences about which practice characteristics are most important in terms of explaining outcomes of interest. But knowledge management is only a first step. Findings need to be packaged and disseminated in ways that promote the use of evidence-informed practices. This is accomplished using knowledge sharing methods, strategies, and tools. Knowledge management and sharing bridges the research-to-practice gap so that the best available evidence informs day-to-day practice.

This monograph includes information about particular approaches to knowledge management and knowledge sharing that has proven effective for bridging the research-to-practice gap in early intervention and early childhood intervention. The knowledge sharing method that is the focus of the monograph is performance checklists where checklist indicators (key characteristics, active ingredients, core components) are informed by results reported in research reviews of early intervention/early childhood special education studies. The checklist indicators in turn were used to develop user-friendly family and practitioner practice guides that include descriptions and examples of how to use evidence-informed interventions as part of everyday practice.

A unique aspect of performance checklist and practice guide development were field tests of both products (tools) where practitioner and family suggestions and feedback were used to inform improvements in both the checklists and practice guides. The feedback and suggestions proved extremely valuable, where progressive improvements made in response to field-test participants’ comments were correlated with increases in practitioner and family judgments of the social validity appraisals of both products. The more improvements that were made in response to practitioner and family member evaluative appraisals, the more the performance checklists and practice guides were judged as socially valid tools.

The methods and strategies described in the monograph are part of the Editor’s research and practice for promoting adoption and use of evidence-based and evidence-informed early intervention and early childhood intervention practices. The approach for doing so could, however, serve as a model and framework for others who might be interested in the research-to-practice methods and strategies described in the monograph.

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This chapter lays the groundwork for a particular approach to knowledge management in response to exponential
growth of information about early childhood intervention research and practice. The chapter includes a description
of how research evidence informed the development of early childhood intervention performance checklists and
practice guides, where the checklist indicators and practice guide content are based on research findings about the key
characteristics, active ingredients, and core elements of different kinds of practices related to outcomes of interest. The
term evidence-informed is used throughout the monograph to refer to the types of practice characteristics-outcome
relationships that have been reported primarily in practice-based research syntheses (Dunst, 2016, 2017b) where the
findings were used to inform the content of early childhood intervention products and tools (Dunst, 2017a; Dunst &
Trivette, 2012).

The term evidence-informed practices is used in a decidedly different way from what has generally been de-
scribed in the literature (e.g., Arnd-Caddigan, 2011; Nelson & Campbell, 2017; Tranfield, Denyer, & Smart, 2003).
Rather, the use of the term is aligned more closely with how Cordingley (2008) used evidence-informed to refer to an
emphasis on how research evidence is used to transform knowledge into products that can be used to improve different
kinds of intervention practices. As a result, the focus is on how evidence-based practices are ascertained, and how that
evidence informs the development of early childhood intervention products from the vantage points of end-users.

The monograph is divided into four sections. Section I includes a single chapter that describes one way in which
large amounts of research evidence was culled and used to inform product development, and how performance check-
lists and practice guides were prepared by adhering to a number of product design considerations. Section II includes
two chapters. The first includes a description of the framework for developing evidence-informed performance check-
lists, and the second includes a description of the evidence base for the checklist indicators. Section III includes four
chapters of findings from different field-test evaluations of the evidence-informed performance checklists and practice
guides. Section IV includes one chapter that presents a description of a particular approach to knowledge management
and sharing in response to continued exponential knowledge growth in the early childhood intervention literature. The
eight chapters in the monograph, taken together, illustrate one way in which knowledge management and sharing was
systematically done where the outcome was evidence-informed early childhood intervention products.

The monograph also includes three appendices. Appendix A includes the sources of evidence for 26 early child-
hood intervention performance checklists. Appendix B includes the sources of the 26 performance checklists as well
as references for other evidence-informed performance checklists. Appendix C includes sources of evidence-informed
early childhood intervention practice guides.

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1. Foundations for the Need for Evidence-Informed Early Childhood Intervention Performance Checklists and Practice Guides

Abstract

Exponential growth in knowledge about early intervention and early childhood intervention theory, research, and practice now requires explicit attention to knowledge harvesting, management, and sharing if the full spectrum of knowledge is going to be used to inform improvements in the lives of young children and their families. This has been accomplished using different approaches to knowledge sharing, including the development of performance checklists informed by research evidence, where a checklist includes the minimum number of steps needed to complete a practice in a competent manner. This chapter includes a description of the process for using the 2014 Division for Early Childhood Recommended Practices to develop performance checklists, and why many of those practices proved problematic in terms of informing the selection or development of performance checklist indicators (active ingredients, key characteristics, core components). The ways in which the limitations were overcome as part of developing evidence-informed performance checklists and practice guides are described.

Keywords: Early childhood intervention, knowledge growth, knowledge management, knowledge sharing, performance checklists, practice guides

1. Introduction

Buckminster Fuller, in his book Critical Path, noted that up until 1900 human knowledge was doubling every 100 years, whereas by the end of World War II, knowledge was doubling every 25 years (Fuller, 1981). Derek Prince, in Little Science, Big Science, noted that by 1960 human knowledge was doubling every 10 years (Prince, 1963). As a result of high speed computers, enhanced chip performance, the World Wide Web, and the Internet, knowledge has been growing in an exponential manner where it is now estimated that knowledge is doubling every 12 to 18 months (e.g., Jensen, McElreath, & Graves, 2018). According to IBM, the continued expansion of the “internet of things” will result in knowledge doubling every 12 hours (IBM Global Technology Services, 2006).

Something akin to this type of knowledge growth has occurred in early childhood intervention. In the late 1960s and early 1970s, knowledge about early intervention and early childhood intervention was quite limited (see Caldwell, 1970, 1971). A Google Scholar search of these types of interventions with infants, toddlers, and preschoolers finds fewer than 200 citations between 1960 and 1970. Many people are surprised to learn that the rationale and foundations for early childhood intervention in the late 1960s and early 1970s included intervention studies of young children in institutions (e.g., Flint, 1966; Skeels, Updegraff, Wellman, & Williams, 1938) and studies of supplemental experiences provided to different kinds of animals (e.g., Beach & Jaynes, 1954; Denenberg, 1964). Fast forwarding to the 21st Century, Google Scholar searches of early intervention and early childhood intervention yielded more than 50,000 citations for the 10 year period ending in 2017.

Figure 1-1 shows the knowledge growth curve from Google Scholar searches for early intervention and early childhood intervention for every five year period of time between 1960 and 2014. Searches for “early intervention” OR “early childhood intervention” were combined with the terms infants OR toddlers OR preschoolers to return only results of relevant citations. (The term infant stimulation, used early in the history of early childhood intervention, was not included in the searches since the term has fallen into disfavor, as evidenced by a decrease in the number of search results beginning in the late 1980s.) The exponential shape of the curve is almost identical to that of knowledge growth in general (e.g.,

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The 2014 set of recommended practices constitutes a third generation set of DEC practices to inform early intervention and early childhood special education (McLean, 2015). The first two sets of DEC recommended practices each included hundreds of early childhood intervention practices (DEC Task Force on Recommended Practices, 1993; Sandall, McLean, & Smith, 2000). The 2000 version of the DEC recommended practices, for example, included 240 practices (Snyder & Ayankoya, 2015), too many for any practitioner to be able to remember, let alone master and use in a proficient manner. One goal in developing the 2014 set of recommended practices was "to create a smaller set of recommended practices...in order to identify a core set of revised prac-
tics” (Snyder & Ayankoya, 2015, p. 14). A DEC recommended practices commission made up of DEC members was given responsibility for accomplishing this task in collaboration with recommended practices topic area workgroup leaders and commission liaisons (Division for Early Childhood, 2015b).

The 2014 DEC recommended practices are organized into seven child, family, and practitioner assessment and intervention topic areas. (An eighth topic area, leadership, includes practices not constituting the focus of this chapter or the other chapters in the monograph.) The seven topic areas are assessment, environment, family, instruction, interaction, teaming and collaboration, and transition practices. Each topic area has (a) a preamble that includes a description of the purpose or intent of the topic area practices and the intended outcomes of the practices and (b) a list of recommended practices for each topic area.

The seven topic areas include 52 practices broadly construed. The term broadly construed reflects the fact that many of the practices within and between topic areas differ considerably in terms of their scope and specificity and, in many cases, are not practices but statements about practices. This is problematic because the ability to use a practice as intended is dependent on how well the core components, active ingredients, or key characteristics of a practice are “spelled out” and are understandable to end-users (e.g., Dunst, 2011; Dunst & Trivette, 2009).

The number of practices for each topic area range between 2 (transitions) and 13 (instruction). Figure 1-2 shows the number of practices for each topic area. Four topic areas include only a small number of practices (transitions, teaming and collaboration, interaction, and environment), whereas the other three topic areas include 2 or 3 times as many practices (family, assessment, and instruction). One of the parameters for informing the development of the 2014 DEC recommended practices was that the “practices should be written so they are observable and clearly describe the actions or behaviors of practitioners” (Snyder & Ayankoya, 2015, p. 17, emphasis added). Many of the practices, however, are not stated in terms of specific actions or behaviors, but rather are global statements or general descriptions of different kinds of practices. As a result, they do not include operationally stated actions, behaviors, or indicators (Babbie, 2009; Dunst, 2017a).

3. Process for Developing Early Childhood Intervention Performance Checklists

The author proposed the use of the 2014 DEC practices as the source of practice indicators to inform the development of performance checklists that could be used by practitioners to produce desired child, family, or practitioner outcomes (Dunst, 2015, 2017a). Performance checklists include sets of behavior indicators, active ingredients, key characteristics, or core components that, taken together, operationally define a particular kind of assessment or intervention practice and the intended benefit or outcome of the practice (Dunst, 2017a). Evidence-based or evidence-informed performance checklists include practice indicators where research findings indicate there is a functional or statistical relationship between the practice indicators and the intended outcomes of a practice (Dunst, 2017b; Chapter 3). Practice-based research evidence is most desirable for informing checklist indicator selection or development because practice-based evidence highlights which active ingredients, key characteristics, or core components prove most important in terms of observed benefits or outcomes (Dunst, 2016).

Performance checklists designed to promote understanding and use of a particular practice adhere to certain design features. First, checklists should “clearly set out the minimum necessary steps in a process...to establish a higher standard of [desired] performance” (Gawande, 2009, p. 39, emphasis added). In the classic article The Magical Number Seven Plus or Minus Two, Miller (1956) noted that the working memory of most adults ranges between 5 and 9 bits of information. Second, information that is organized (chunked) around a common theme (such as checklist indicators for a particular type of practice) is easier to remember than information that has weak associations (Mathy & Feldman, 2012). Third, information written in identical or similar formats is easier to learn and remember (Kintsch, 1994, 1998). As noted by Schwartz (2014), similarly formatted material used as part of everyday, real-world application serves...
as mnemonic devices for improving learning and performance (see also Kintsch, 1998).

A five-step process was used to develop early childhood intervention performance checklists for each DEC recommended practices topic area. The checklist indicators in turn were used to inform the development of practice guides to illustrate practitioner and family member use of the indicators. The process is shown in Table 1-1. 

End-user (practitioners and family members) judgments of the importance and acceptability of the products were used to determine if the checklists and practice guides were considered socially valid (Foster & Mash, 1999) and, therefore, more likely to be adopted and used as intervention tools for implementing intervention practices with fidelity (Dunst, Raab, & Hamby, 2016; Strain, Barton, & Dunlap, 2012). Schmutz et al. (2014) used a similar process for developing a clinical checklist where research evidence was used to inform the selection of checklist indicators where feedback from practitioners was used to make improvements in the checklist practices (see also Gawande, 2009).

The first step was to content analyze the practices in each DEC recommended practices topic area to identify internally consistent sets of practice indicators where each set of indicators operationally defined a particular type of early childhood intervention practice. For example, the five interaction practices were content analyzed which resulted in four sets of internally consistent sets of practices where each set was used to develop a different performance checklist for different outcomes (Dunst, 2015).

The second step involved use of each set of practices to identify or develop practice indicators stated in terms of the key characteristics, active ingredients, core components, and actions known to be associated with intended child or family outcomes (Dunst, 2017a; Dunst, Trivette, & Raab, 2015; Wilson, 2013). The DEC recommended practices, for each set of actions or behaviors, were reformatted or restated in terms of a list of practice indicators, stated in the same or similar ways for all performance checklists, to facilitate practitioner learning and mastery of the key characteristics of the practices (e.g., Crowder, 2015; Schwartz, 2014). As noted by Schwartz (2014), preparing material in the same or parallel formats facilitates learning, memory, recall, and performance.

The third step involved use of the checklist indicators to develop both family and practitioner practice guides to illustrate how the indicators could inform the development of end-user friendly products to “bring-to-life” the checklist practice indicators. The practice guides were intended to be models for how checklist indicators could be used to inform the development of other practice guides for other kinds of practices, and not intended to be exhaustive of the scope and breadth of practices that could be developed using the checklist indicators. The practice guides, like the checklists, were all prepared in the same format to facilitate the use of the practice guides for intervention purposes (Schwartz, 2014). Results from studies of text and material preparation also informed the preparation of the practice guides (e.g., Kintsch, 1994, 1998; Lemarié, Lorch, & Péry-Woodley, 2012; Serra & Dunlosky, 2010).

The fourth step was obtaining practitioner feedback, input, and suggestions on the performance checklists and practice guides, as well as family feedback, input, and suggestions on the family practice guides. Both practitioners and parents were asked to make social validity judgments (Foster & Mash, 1999; Strain et al., 2012) of the materials in a series of field-tests where results from each field-test were used to make improvements in both the checklists and practice guides (Step 5). Practitioner and family feedback and input was seen as necessary to ensure that the performance checklists and practice guides were considered important early childhood intervention practices and worth the time and effort to be used.

Table 1-1

<table>
<thead>
<tr>
<th>Step</th>
<th>Development Process</th>
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<tbody>
<tr>
<td>1</td>
<td>Content analyze the practices in each DEC recommended practices topic area to identify internally consistent sets of practice indicators</td>
</tr>
<tr>
<td>2</td>
<td>Use the different sets of practice indicators to develop performance checklists of evidence-based or evidence-informed practice characteristics</td>
</tr>
<tr>
<td>3</td>
<td>Use the checklist practice characteristics to develop family and practitioner practice guides to provide practitioners and family members examples of checklist practices</td>
</tr>
<tr>
<td>4</td>
<td>Obtain early childhood practitioner feedback on the checklists and practice guides and parent feedback on the family practice guides</td>
</tr>
<tr>
<td>5</td>
<td>Use practitioner and family feedback and suggestions to improve the performance checklists and practice guides</td>
</tr>
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to improve outcomes of interest (Foster & Mash, 1999). Chapters 4 through 7 include the results from the field tests.

4. Problems and Concerns with the 2014 DEC Recommended Practices

Three sets of concerns, problems, and challenges surfaced as part of using the 2014 DEC recommended practices for developing early childhood intervention performance checklists. The first included a number of problems in terms of the lack of specificity in the content of the practices. For example, the topic area practices differ considerably in their specificity and comprehensiveness, which proved problematic in terms of using the practices for identifying or developing checklist indicators for particular types of early childhood intervention practices. The second was the lack of research evidence for the recommended practices. Most of the literature cited as research evidence for the recommended practices did not include evidence at all or was not the best available evidence. The third was the fact that the recommended practices fail to adhere to generally accepted design features. In many respects, the failure constitutes a step backwards compared to the previous version of the recommended practices (Sandall et al., 2000). Each of these concerns, problems, and challenges are described in this section of the chapter.

4.1. Lack of Specificity of the Recommended Practices

The original intent for using the 2014 DEC recommended practices to develop performance checklists was to unpack the practices to identify internally consistent sets of practice indicators that, on the one hand, operationally defined particular kinds of early childhood intervention practices, and, on the other hand, could be used to inform the selection or development of checklist practice indicators. The process proved workable for some topic areas but especially difficult for other topic areas. Whereas some topic areas included a number of behavior indicators for developing performance checklists, other topic areas included only a few practices or only nonspecific practices. The primary problem that surfaced for using the 2014 DEC recommended practices for identifying performance checklist indicators was the fact that the different sets of recommended practices are so uneven in their specificity and comprehensiveness. This was found for quite a few of the recommended practices.

First, the different topic areas differ considerably in terms of the number of practices (see Figure 1). As noted earlier, transitions include only two practices, whereas instruction includes 13 practices. The two transition practices, for example, include only broadly stated practices (“Exchanging information between sending and receiving programs”; “Using a variety of [unspecified] planned and timely strategies”) where we know from research syntheses that transitions include many other methods, strategies, and practices necessary for ensuring transitions are smooth and effective (see Appendix A-7). The lack of comprehensiveness for the two transitions practices made it almost impossible to use the practices to develop checklist indicators. The same was the case for certain assessment and environment practices where practices are stated in such a global way that the intent or purpose of the practices is not explicitly clear.

Second, the recommended practices differ considerably in their specificity. For example, both the interaction and instruction practices are indicator rich, whereas the environment practices include basically a list of different types of practices. For example, the environment practice “Practitioners consider Universal Design for Learning principles to create accessible environments” is not a practice per se since universal design includes a broad range of different kinds of practices (e.g., Hamraie, 2017; Sanford, 2012). In the absence of specificity, the practices do not easily inform the identification or development of checklist practice indicators.

Third, in many instances, the intent of a practice was left open to various interpretations. This was especially the case in terms of which practices were expected to have which outcomes. For example, although the preambles to the assessment practices includes five purposes for assessment, more than half of the assessment practices are stated in ways where the purpose is not at all clear (e.g., “Practitioners work as a team with the family and other professionals to gather assessment information” for what purpose?). The same was the case for other practices as well. For example, the family practice “Practitioners inform families about leadership and advocacy skill-building opportunities and encourage those who are interested to participate” is nonoperational and open to all kinds of (mis)interpretations.

Fourth, a number of practice areas, and particularly the interaction topic area, are so “packed full” of behavior indicators that, as written, would make the practices likely unusable to novice or beginner practitioners. Consider, for example, the practice “Practitioners promote the child’s communication development by observing, interpreting, responding contingently, and providing natural consequences for the child’s verbal and nonverbal communication and by using language to label and expand on the child’s requests, needs, preferences, or interests.” The antecedents, practice indicators, mediators, and practice outcomes are so intertwined that it would seem almost impossible for a practitioner to use this practice as part of everyday intervention.
Fifth, in a number of instances, certain practices seem to have been “added on” with little or no rhyme or reason. Take, for example, the one family practice and two instruction practices that have to do with dual language learners (e.g., “Practitioners use and adapt instructional strategies that are effective for dual language learners when teaching English to children with disabilities. ”). On the one hand, they do not seem to fit with the other practices in this topic area, and, on the other hand, beg the question why these two topic areas and not others and especially the interaction topic area? This is not to say the practices are not important, but to point out inconsistencies in the topic area practices themselves.

These five factors, among others, led me to conclude that “The lack of specificity of the DEC recommended practices both in terms of the interventions and outcomes of the practices, and the fact that individual practices are formatted so differently, makes their usefulness [for] early childhood intervention [performance checklists]... questionable” (Dunst, 2017a, p. 5). This conclusion was made, in part, by the fact that large numbers of recommended practices are formatted and stated in such different ways that they confuse rather than clarify the purpose of intent of the practices.

4.2. Lack of Research Evidence for the Recommended Practices

In the monograph Enhancing Services for Young Children with Disabilities and Their Families, it is stated that “The 2014 version of the DEC Recommended Practices represents the most current knowledge available on evidence-based, high-leverage practices to support young children, birth through age 5, with disabilities and their families” (Division for Early Childhood, 2015a, p. v). In this same monograph, McLean (2015) cited the empirical support for the 2000 version of the DEC recommended practices (e.g., Smith et al., 2002) but no evidence for the 2014 practices. This was the case, to a large degree, because “Given the accelerated timelines for producing the [2014] revised set of recommended practices in one year, the [DEC] commission determined it would not be feasible to conduct comprehensive literature reviews to gather information about the status of the best available evidence” (Snyder & Ayankoya, 2015, p. 21, emphasis added). This begs the question: If no evidence was provided for the 2014 DEC recommended practices, how can a claim be made that the practices are evidence-based?

In the absence of direct evidence for the 2014 DEC recommended practices, two sources of information were offered as evidence for the recommended practices. The first was the empirical evidence for earlier sets of DEC recommended practices (Snyder & Ayankoya, 2015). The second was lists of references for “evidence nominated by the topic area workgroups for each revised practice” (Snyder & Ayankoya, 2015, p. 22).

Some of the evidence amassed for earlier versions of DEC recommended practices (e.g., Sandall et al., 2000) no doubt includes findings relevant to the 2014 recommended practices (Division for Early Childhood, 2014). There is, however, no direct correspondence since the “topic areas” in the two sets of practices are not all the same, and neither is the content of the practices for the same topic areas all the same.

The direct service “topic areas” in the 2000 DEC recommended practices are assessment, child-focused intervention, family-based practices, interdisciplinary models, and technology applications. Content analyses of the practices for the two sets of DEC recommended practices finds some overlap but hardly any one-to-one correspondence in terms of the same or identical list of practices. For example, the 2000 DEC recommended practices uses the term transitions to refer to both transitions between classroom activities and transitions between programs, whereas the 2014 DEC recommended practices uses transitions only in terms of transitions between programs. Thus, claims that the research evidence for the 2000 DEC recommended practices constitutes evidence for the 2014 recommended practices do not seem warranted. As a result, the evidence for the 2000 DEC recommended practices would be applicable to the 2014 DEC recommended practices for some but certainly not all of these practices.

Evidence for the effectiveness of any type of practice requires that there be a functional or statistical relationship between a practice and an outcome or outcomes of interest (Dunst, 2010; Dunst, Trivette, & Cutspec, 2007). More specifically, there has to be an empirical relationship between the key characteristics, active ingredients, or core components of a practice and observable changes, improvements, or differences in child, caregiver-child, parent, family, or practitioner behavior or functioning (Dunst & Espe-Sherwindt, 2017). This is the type of practice-based evidence needed to inform isolation of what matters most in terms of explaining outcomes of interest (Dunst, 2016, emphasis added). Practice-based research evidence includes findings where certain behavior indicators prove more important than others in terms of explaining practice-outcome relationships (Dunst, 2010, 2016; Dunst & Trivette, 2012). These relationships can be established using any number of research designs and approaches. The most important thing is that the evidence establishes practice-outcome relationships for the behavior indicators for an intervention practice and intended benefits.

As part of final preparation of the 2014 DEC recommended practices, topic area workgroup leaders were
asked to provide lists of published and unpublished studies that included evidence for the practices in each topic area. The number of citations provided by the topic area workgroups ranged between 20 (interaction) and 125 (instruction) (Mean = 54, SD = 39). The studies were categorized by the workgroup leaders (?) as descriptive, correlation, quasi-experimental, or experimental studies, or as meta-analyses or [unspecified types of] syntheses. The descriptions proved problematic for a number of reasons. For example, descriptive studies were described as “studies that include statistics that summarize and/or describe the data characteristics of a sample population, or phenomenon being studied.” These types of studies, however, would not likely include practice-outcome relationship data and therefore would not include evidence for the effectiveness of an intervention practice.

The author, as part of a review and analysis of the papers provided as evidence for the practices in each topic area, could not replicate the categorization for four reasons. First, large numbers of papers included no practice-outcome evidence whatsoever. For example, Bailey et al. (2004) was cited as evidence for an assessment practice involving professionals and family members working together to gather assessment information, but that report includes no evidence for this practice nor was the purpose of the study to do so. Second, papers that included evidence were quite often not evidence for the practice to which it was assigned. For example, Dunn et al. (2012) was cited as evidence for a teaming practice also involving practitioners and family members working together, but the research in that study includes findings from a study “to coach parents in strategies to support their child’s participation in everyday activities and routines” (p. 520). Third, quite a few studies were investigations of older individuals with disabilities and not infants, toddlers, or preschoolers. There were, for example, research syntheses cited as evidence for an environment practice for providing infants, toddlers, and preschool children opportunities for movement and physical activity, but the syntheses included studies of school-age children and youth but no preschoolers (e.g., Janssen & LeBlanc, 2010; Johnson, 2009; Taub & Greer, 2000). Fourth, many of the papers categorized as meta-analyses or syntheses were in fact not research reviews. For example, Cara’s Kit (Milbourne & Campbell, 2007) was cited as a research synthesis for an environment practice but this document includes no evidence whatsoever for the practices constituting the focus of creating adaptations for everyday routines and activities. These are but a few examples of the disconnect between the 2014 DEC recommended practices and cited evidence for the practices.

At least one reason why the categorization of the papers could not be replicated is the fact that the “definitions of types of evidence” used to classify the cited evidence were not operational definitions. Rather, they were general descriptions of studies or research reviews. For example, many of the papers classified as [research] syntheses were in fact narrative reviews that did not include explicit analyses of practice-outcome relationships (e.g., Case-Smith & Holland, 2009; Finello, 2011; Horn & Kang, 2012; Justice & Kaderavek, 2004; Keen, 2007; King et al., 2003) but rather were selective reviews of studies to support author assertions about particular types of practices.

Based on all of the above concerns about the research evidence for the 2014 DEC recommended practices, the author reexamined all the cited evidence using operational definitions of different types of research syntheses (Dunst, 2016). I focused specifically on systematic reviews and meta-analyses because these types of syntheses typically include aggregated evidence from multiple studies where replicated findings bolster contentions about practice-outcome relationships (e.g., Banerjee, Movahedazarhouligh, Millen, & Luckner, 2018; Jasny, Chin, Chong, & Vignieri, 2011; Simons, 2014). The four types of research reviews were narrative reviews, summative reviews, systematic reviews, and meta-analyses. The definitions are shown in Table 1-2.

Very few of the sources of evidence cited as syntheses or meta-analyses met either stringent (meta-analyses) or liberal (systematic reviews) definitions of these types of research reviews. Meta-analyses were considered stringent evidence if effect sizes for practice-outcome relationships were reported, whereas systematic reviews were considered liberal evidence if there was at least some explicit focus on the description of practice-outcome relationships. The number of reviews that were so classified is shown in Figure 1-3. The only topic areas for which there was evidence for replicated practice-outcome relationships were the instruction and family topic areas. The findings confirm an earlier conclusion that the 2014 DEC recommended practices cannot be considered evidence-based or evidence-informed as determined by the fact that so few research reviews include practice-outcome data.

Closer examination of the cited evidence found considerable variation in the percent of total number of articles that were either systematic reviews or meta-analyses. As reported earlier, the number of citations for the different topic areas ranged between 20 (interaction) and 125 (instruction). This is shown in Figure 1-4. The percents ranged between zero (transitions) and 32% (family) with the majority of evidence not including replicated results reported in either systematic reviews or meta-analyses. Again, except for the family practices, the preponderance of citations for the 2014 DEC recommended practices cannot be considered sufficient evidence for the practices.
4.3. Lack of Adherence to Product Design Considerations

Research on written material indicates that different sets of materials organized and formatted in the same way facilitates understanding, learning, memory, recall, and performance (e.g., Crowder, 2015; Druckman & Bjork, 1994; Schwartz, 2014). Research on product design indicates that the ways in which written material is organized and formatted matters a great deal if written information is easily to be understood and used (Lemarié et al., 2012; Lohr & Gall, 2008). The 2014 DEC recommended practices fail to adhere to a number of basic design principles (Lidwell, Holden, & Butler, 2003).

Headings serve as signaling devices, where salient headings function as cues that cause readers to attend to and anticipate the content of written text (Lemarié et al., 2012). The more descriptive a heading, the more likely it will influence text processing. Single word headings provide the least amount of descriptive information, whereas multiword headings have increased communicative value. Except for Teaming and Collaboration, all of the 2014 DEC recommended practices have single word headings which is inconsistent with research on effective written material preparation (Lohr & Gall, 2008). The more descriptive a heading, the more likely it will influence text processing. Single word headings provide the least amount of descriptive information, whereas multiword headings have increased communicative value. Except for Teaming and Collaboration, all of the 2014 DEC recommended practices have single word headings which is inconsistent with research on effective written material preparation (Lohr & Gall, 2008). Consider, for example, Instruction vs. Instructional Practices, a simple but important difference. As noted by Lemarié et al. (2012), Instructional Practices is the type of heading that is both visually salient and “more likely to have different effects on text processing” (p. 14). Parenthetically, the 2000 DEC recommended practices all include visually salient headings (e.g., Recommended Practices in Child-Focused Interventions), whereas none of the 2014 recommended practices include headings consistent with product design research evidence. Crowder (2015), Kintsch (1998), and Schwartz (2014) among others (e.g., Lohr & Gall, 2008) noted that the way in which written material is formatted influences text processing and understanding. Written material formatted in the same or a parallel manner facilitates text processing, understanding, and mastery (Kintsch, 1994). According to Schwartz (2014), formatting written mate-

### Table 1-2

**Definitions of Different Types of Research Syntheses**

<table>
<thead>
<tr>
<th>Type of Research Synthesis</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrative Reviews</td>
<td>Narrative, or traditional literature reviews “attempt to identify what has been written on a subject or topic, using which methodologies, on what sample or populations, and what findings” (Davies, 2000, p. 367)</td>
</tr>
<tr>
<td>Summative Reviews</td>
<td>Summative or state-of-the-art reviews include some type(s) of quantification of research in terms of the number of studies or findings according to type of intervention, settings, research designs, study participants, study results, or some other relevant intervention or study feature (Grant &amp; Booth, 2009)</td>
</tr>
<tr>
<td>Systematic Reviews</td>
<td>Systematic reviews are research syntheses where “there is a comprehensive search for relevant studies on a specific topic, and those identified are then appraised and synthesized according to a predetermined explicit method” (Klassen, Jahad, &amp; Moher, 1998, p. 701)</td>
</tr>
<tr>
<td>Meta-Analyses</td>
<td>A meta-analysis is a particular type of systematic review where effect sizes are used for assessing the relationship between a practice and outcome where the combined effect size of results from a number of studies of the same or similar practice are used to estimate the average effect of a practice (Shadish &amp; Haddock, 2009)</td>
</tr>
</tbody>
</table>

Figure 1-3. Number of systematic reviews and meta-analyses cited as evidence for the 2014 DEC recommended practices by each of the DEC Topic Area Workgroup leaders.
rial in the same way, and especially as part of routine, everyday application, "causes the learner to focus on the meaning of the material thus increasing the depth of processing" (p. 107) and performance (Clark & Nguyen, 2008).

Cursory examination of the preambles to the 2014 DEC recommended practices topic areas finds that they are written in ways not aligned with the principle of consistency (Lidwell et al., 2003). As noted by Lidwell et al. (2003), the usability of any product, including written text, is more "learnable when similar parts are expressed in similar ways. Consistency enables people to efficiently transfer knowledge to new contexts [and] learn new things quickly" (p. 56). Consider, for example, the fact that the introductory sentences to the assessment, family, transition, and to a lesser extent, the interaction preambles, state the purpose of the topic area practices, whereas the purposes of the instruction and teaming and collaboration topic area practices are buried within the preambles. These are but a few examples of a failure to adhere to the principle of consistency.

Closer inspection of the different sets of recommended practices finds that they are generally not written in ways consistent with accepted guidelines and principles for writing text in ways likely to promote understanding and application (Lohr & Gall, 2008). According to Kintsch (cited in Lohr & Gall, 2008), "the organization of text is as important to the meaning as words themselves" (p. 92). The DEC recommended practices fail to adhere to this simple text organization feature. Compare, for example, these two practices:

- Practitioners consider Universal Design for Learning principles to create accessible environments
- and
- Practitioners work with the family to identify, access, and use formal and informal resources and supports to achieve family-identified outcomes or goals.

Whereas the latter includes antecedent, practice, and outcome elements, the former does not include all three elements (e.g., create accessible environments for what purpose or outcome?). Close examination of the 2014 DEC recommended practices within and between topic areas indicates that many, if not most, are written in quite dissimilar ways, which necessitates that readers re-orient their processing skills as they move from one practice to another. Well written text uses similar structure to facilitate memory, understanding, and performance (Lohr & Gall, 2008). The 2014 DEC recommended practices fail short in terms of this design feature.

Preparing materials that are easy to read and comprehend necessitates that similar or common terminology having the same meaning be used to facilitate understanding (e.g., Brenes, 2017; Cabré, 1999; Thaiss & Zawacki, 2006) and use of intervention practices as intended (e.g., Colquhoun et al., 2014; Rabin & Brownson, 2012). A content analysis of the 2014 recommended practices finds different terminology used to (presumably) describe similar practices and practice characteristics. For example, the terminology natural consequences; explicit feedback and consequences; and respond contingently; seem to be used interchangeably (but inconsistently) to refer to reinforcement of child behavior. The terminology respond contingently and respond intentionally also seem to be used interchangeably to refer to reinforcement provided in response to child production of specific kinds of child responses. The use of different terms to refer to similar behavior indicators serves to confuse rather than facilitate common understanding and use of terms (Cabré, 1999).

Terminology in the 2014 DEC recommended practices for everyday natural learning opportunities include routines and activities; activities and routines; daily routines; and daily activities. In other instances, the terms routines, activities, and environments; and environments, routines, and activities; are used interchangeably to refer to either locations (home, center, and community) or the activity settings in which child learning opportunities occur (e.g., Dunst, Bruder, Trivette, & Hamby, 2006; Dunst, Hamby, Trivette, Raab, & Bruder, 2002). In another recommended practice, the term activity is used to refer to a specific type of child practice to "maintain or improve fitness, wellness, and development," while in

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1The majority of the research syntheses for the family practices were provided by the author as part of his initial involvement in the family practices workgroup.
yet another recommended practice, the term activities is used to refer to a particular (unspecified) type of transition practice. This can only be confusing to early childhood intervention practitioners (Colquhoun et al., 2014; Michie, Fixsen, Grisham, & Eccles, 2009).

Consistency in how terms are used to convey similar intent is necessary if practitioners are to be able to understand the key characteristics of intervention practices or the behavior indicators of practices (Mitzkat, Berger, Reeves, & Mahler, 2016; Temmerman, 2000). There is considerable inconsistency, for example, in how different child characteristics function as person factors influencing learning and development (Bronfenbrenner, 1992, 1993) in the 2014 DEC recommended practices. These person factors include, but are not limited to, those child personal characteristics that interact with person and environment setting factors that help explain variations in child outcomes. These types of factors (characteristics) are described in the recommended practices as child's strengths and needs; child's strengths, preferences, and interests; child's requests, needs, preferences or interests; and child's strengths, needs, preferences, and interests. The reason why all applicable recommended practices do not include the full range of development-enhancing child characteristics is not at all clear and, more importantly, fails to communicate to practitioners which characteristics ought to be taken into consideration as part of child-focused intervention practices.

4.4. Summary and Conclusion

This section of the chapter included descriptions of major problems and concerns with (1) the lack of specificity of the 2014 DEC recommended practices, (2) the lack of research evidence for the recommended practices, and (3) the failure to adhere to basic product design considerations. Converging sets of qualitative and quantitative evidence were used to highlight some, but certainly not all of the problems and concerns with the 2014 DEC recommended practices. This necessitated considerable license in terms of how the recommended practices were used to select or develop performance checklist indicators and why, in many instances, there was a need to look elsewhere for the sources of checklist indicators and the research evidence for the indicators.

5. Approach to Developing Evidence-Informed Performance Checklists and Practice Guides

The problems, concerns, and challenges unearthed in the course of using the 2014 DEC recommended practices for identifying or developing evidence-informed performance checklist indicators were addressed and overcome through a more systematic approach to product development. This involved the process used to identify or develop checklist indicators, the sources of research evidence that were the foundations for the checklist practices, and the ways in which the checklists were formatted and how the instructions and indicators were written.

First, the selection or development of checklist indicators was guided by a conceptualization-operationalization-measurement framework (Babbie, 2009) where each DEC recommended practice topic area was content analyzed (to the extent possible) to identify different sets of practices where the key characteristics embedded within the topic areas were initially used to develop or select checklist indicators. In those cases where the topic area practices could not be used to identify or develop checklist indicators, evidence-based sources of information were used to identify different types of practice characteristics in each topic area. The process for doing so is described in Dunst (2017a), Dunst et al. (2015), and Chapter 3. This ensured that all performance checklists were prepared in similar formats where checklist indicators were the key characteristics of a particular type of early childhood intervention practice.

Second, the selection and development of the performance checklist indicators were informed by findings reported in research syntheses of practice-outcome relationships and especially those reported in practice-based research syntheses (Dunst, 2016) where the active ingredients, core components, and key characteristics of an early childhood intervention practice were found to be related to outcomes of interest. An explicit effort was made to include only practice indicators where research evidence was available to support the use of the indicators to produce outcomes of interest. The evidence included findings from more than 200 research reviews of practice-outcome relationships. The evidence is described in Dunst (2017b) and Chapter 3.

Third, the formatting, organization, and terminology used in writing the performance checklists (and practice guides) were done in ways informed by generally accepted guidelines and principles for ensuring the products facilitate practitioner learning, understanding, memory, and performance (e.g., Crowder, 2015; Schwartz, 2014). This included, but was not limited to, the evidence-informed guidelines, principles, and recommendations described in Cabre (1999), Lemarie et al. (2012), Lidwell et al. (2003), Lohr and Gall (2008), and Temmerman (2000). As a result, the performance checklists and practice guides were all written in parallel ways so that practitioners do not need to reorient themselves as they move from one product to another (e.g., Kintsch, 1998). This ensured consistency within and between performance checklists and practice guides.

The approach to developing performance check-
lists and practice guides described in this chapter was informed by lessons learned from the author’s experiences and those of others, research findings amassed over many years of investigation, and the methods and procedures for preparing written materials in ways that facilitate learner understanding, memory, and ability to use different kinds of early childhood intervention practices. Throughout this chapter, it was noted that the 2014 DEC recommended practices fail to adhere to, and therefore, are inconsistent with foundational principles and evidence for material preparation. The original intent for using the DEC recommended practices as sources of checklist indicators and practice guide activities proved futile for more than half of the topic area practices where it became increasingly apparent that alternative procedures were required. This chapter introduced the reader to those procedures, whereas the remaining chapters in the monograph include detailed descriptions of how the performance checklists and practice guides were developed, evaluated, and improved based on systematic feedback from practitioners and parents of young children.

References


Division for Early Childhood. (2014). *DEC recommend-


This section of the monograph includes two interrelated chapters. Chapter 2 includes a description of the procedures that were used to develop evidence-informed performance checklists, and Chapter 3 includes a description of the evidence that was used for identifying or developing performance checklist indicators.

A systematic approach was used to develop early childhood performance checklists based on a framework proposed by Babbie (2009) for operationalizing the indicators and key characteristics of constructs of interest, such as a particular kind of early childhood intervention practice. The framework includes three interrelated elements: Conceptualization (e.g., specifying what we mean when we describe or define an intervention practice), operationalization (e.g., specifying the key characteristics of a practice), and measurement (e.g., procedures for knowing if the key characteristics were used as intended). The procedures for doing so are described in Chapter 3 and elsewhere (e.g., Dunst, Trivette, & Raab, 2015).

The identification or development of the key characteristics of different performance checklist indicators (i.e., key characteristics) was based on the evidence described in Chapter 3 and included in Appendix A. The evidence base for 26 early childhood intervention performance checklists was findings from more than 200 research syntheses of the different kinds of early childhood practices described in Chapter 3 as well as in other sources (Dunst, 2010, 2016; Trivette & Dunst, 2013). As noted in that chapter, checklist indicators were considered evidence-informed when and only when research indicated that key practice characteristics were empirically related to the expected outcomes of the practice.

The two chapters, taken together, illustrate one approach to knowledge harvesting and management (Asrar-ul-Haq & Anwar, 2016; Rehman, 2016), as well as how research knowledge was used for knowledge packaging, sharing, and dissemination (Huysman & de Wit, 2002; Janus, 2016) specifically to inform adoption and use of evidence-informed early childhood intervention practices. Both the procedures for developing performance checklists, and the sources of evidence for identifying or developing checklist indicators, are based on the less-is-more principle (Halpern & Hakel, 2002, 2003). The fewer the number of checklist indicators, the higher the likelihood that the practices will be used as intended (Gawande, 2009).

References


2. Procedures for Developing Evidence-Informed Performance Checklists for Improving Early Childhood Intervention Practices

Carl J. Dunst

Abstract

A conceptualization-operationalization-measurement framework is described for developing evidence-informed early childhood intervention performance checklists. Performance checklists include lists of practice indicators where the indicators, taken together, operationally define particular types of intervention practices that, when used as intended, can be expected to have desired outcomes and benefits. The use of the framework for operationalizing recommended practices is described to illustrate its applicability for developing tools for improving early childhood intervention.

Keywords: Performance checklists, conceptualization, operationalization, measurement

1. Introduction

Early childhood intervention involves the provision of different types of supports and resources to young children birth to 6-8 years of age and their families to improve child, parent, and family functioning (Shonkoff & Meisels, 2000). The term early childhood intervention encompasses early intervention for infants and toddlers with identified disabilities or developmental delays (Dunst & Espe-Sherwindt, 2017), early childhood special education for preschoolers with identified disabilities (Reichow, Boyd, Barton, & Odom, 2016), early years education for infants, toddlers, and preschoolers who are at-risk for poor developmental outcomes due to family circumstances (Burger, 2010), and early childhood education for all young children birth through eight years of age (Copple & Bredekamp, 2009).

Early childhood intervention practices include the experiences, learning opportunities, and activities used to influence child learning and development (e.g., Campbell & Sawyer, 2007; Raab, 2005), the methods and procedures used by adults (early childhood practitioners, parents, and primary caregivers) to support young children’s learning and development (e.g., Kahn, Stemler, & Berchin-Weiss, 2009; Swanson, Raab, & Dunst, 2011), and the methods and strategies used by early childhood intervention practitioners to support and strengthen parents’ and other primary caregivers’ abilities to engage young children in development-enhancing learning opportunities (e.g., Roberts, Kaiser, Wolfe, Bryant, & Spidalieria, 2014; Salisbury & Cushing, 2013). These experiences, opportunities, activities, methods, strategies, etc. constitute different kinds of intervention practices where individual practices include core components (Fixsen, Blase, Naoom, & Wallace, 2009), active ingredients (Clark, 2009; Li & Julian, 2012), or key characteristics (Dunst & Trivette, 2009c; Landry, Smith, & Swank, 2006), that are intended to have desired outcomes or consequences.

The knowledge base for early childhood intervention practices has expanded rapidly in recent years to the point that it is almost impossible for any early childhood intervention practitioner to keep pace with advances in theory, research, and practice (e.g., Guralnick, 2005; Reichow et al., 2016; Shonkoff & Meisels, 2000; Sukkar, Dunst, & Kirkby, 2017). A PsychINFO search for “early childhood intervention” AND “models OR research OR practice” yielded over 12,600 results, and a Google Scholar search using the same search terms resulted in 18,700 hits. A Google Scholar search of “early intervention” AND “model OR research OR practice” resulted in 1,120,000 hits. These search results, taken together, are an indication that the knowledge base far exceeds one’s capacity to keep up with the contemporary knowledge...

Dunst, C. J. (2017). Procedures for developing evidence-informed performance checklists for improving early childhood intervention practices. Journal of Education and Learning, 6(3), 1-13. doi:10.5539/jel.v6n3px. Reprinted with permission. This is an open-access article distributed under the terms and conditions of a Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).
explosion in early childhood intervention.

Atul Gawande (2009), in his book, *The Checklist Manifesto: How to Get Things Right*, notes that as any field accumulates more and more knowledge about effective practices, “the volume and complexity of what we know exceeds an individual’s ability to deliver its benefits correctly, safely, or reliably” (p. 13). More than 50 years of research and practice in early childhood intervention has resulted in a knowledge base that challenges even the most highly trained and hardworking practitioner’s ability to remember and internalize the key characteristics of multiple sets of interventions as a matter of routine practice (Druckman & Bjork, 1994; Jaber, 2011). This is at least one factor that most likely contributes to poor fidelity of use of intervention practices and less than optimal intervention outcomes and benefits (e.g., Vancel, Missall, & Bruhn, 2016). As noted by Gawande (2009), the solution “seems almost ridiculous in its simplicity…. It is a checklist” (p. 13). Checklists include the minimal number of clearly stated actions or steps for a practitioner to achieve outcomes of interest.

### 2. Performance Checklists

Different types of checklists have been developed for different purposes (e.g., Oxman, 1994; Rowlands, 2007; Stufflebeam, 2000; Taylor, Grey, & Satterthwaite, 2013). Wilson (2013) describes the intended purposes of eight different types of checklists, one of which “provides a list of tasks or steps required to complete a procedure successfully…and serve as concrete reminders of what tasks need to be performed” to ensure the procedure is implemented correctly (p. 4). This type of checklist is described in this paper as a performance checklist whereas Wilson (2013) describes it as a procedure checklist.

The ability to use an early childhood intervention practice competently is dependent, in part, on a clear understanding of key characteristics or active ingredients of the practice. This is often facilitated by using performance checklists that include lists of practice indicators or key characteristics (Westgaard, 2001). Performance checklists include sets of indicators that, taken together, define a particular skill set or practice that is intended to have desired benefits or outcomes (e.g., Greenwood, Luze, Cline, Kuntz, & Leitschuh, 2002; Roggman et al., 2013). These types of checklists include the behavior, skills, or actions that define desired performance or the ability to implement a practice as intended. Checklists are especially useful for a practitioner to understand the key characteristics of a practice or expected performance because they include indicators for knowing if a procedure, process, or activity has been implemented in a competent manner (C. Wilson, 2013).

Performance checklists have been used widely in a number of different fields and professions (e.g., Gwynne, Blick, & Hughes, 1996; Lockyer et al., 2006; McSwain, Mahan, & Herrin, 1979; Perry, Potter, & Osten dorf, 2014) including education (Rowlands, 2007; Sullivan, 1998) and early childhood intervention (e.g., Casey & McWilliam, 2011; Greenwood et al., 2002; Roggman et al., 2013). Karges-Bone (2000), for example, developed more than 50 performance checklists to facilitate student knowledge acquisition, teacher classroom management, and parent-teacher communication. Similarly, Herbert-Jackson et al. (1977) and O’Brien et al. (1979) developed performance checklists of procedures for administering child care centers; carrying-out feeding, diapering, and sleeping routines; classroom organization; transitions between classroom activities; preparing children’s snacks and lunch; facilitating child play; and child health and safety procedures among other practices. More recently, McWilliam’s (2010) book, *Working with Families of Young Children with Special Needs*, includes nine chapters each of which includes checklists that practitioners can use to improve their interventions with young children with developmental delays or disabilities and their families.

Despite the fact that checklists are widely used in a number of professions to improve practitioner performance, very little has been explicitly written about procedures for developing checklists. Results from literature reviews by Frank (2006) and Winters et al. (2009), for example, found that articles describing the development of checklists rarely included descriptions of the procedures that guided checklist development (see C. Wilson, 2013, for an exception). Most often, expert panels or consensus procedures have been used to develop checklist items (Gorter et al., 2000). Winters et al. (2009), based on their review of checklists, concluded that checklist development could be improved considerably if scientific evidence was used to inform checklist indicator development.

The purpose of this paper is to describe an evidence-based approach to performance checklist development that combines key features of practice-based research syntheses for identifying evidence-informed checklist indicators (Dunst, 2016) and a framework for systematically operationalizing intervention practices (Babbie, 2009). The approach has been used to develop performance checklists for research purposes (Dunst, Trivette, & Raab, 2015). This paper uses the same approach with several extensions to illustrate its applicability for developing performance checklists for improving early childhood intervention practices. Schmutz et al. (2014) used a similar approach for developing a clinical performance checklist for improving health care practices.
3. Framework for Developing Evidence-Informed Performance Checklists

Figure 2-1 shows the framework used to develop evidence-informed performance checklists. The three overlapping circles depict the relationship between different types of intervention practices (conceptualization), procedures for identifying key practice characteristics (operationalization), and the use or nonuse of the key practice characteristics (measurement) where findings from practice-based research syntheses are used to inform the foundations for internally consistent sets of intervention practices. The indicators, in turn, are used to develop checklist items that serve as reminders or cognitive tools that help practitioners implement a practice as intended where fidelity of use of the practice is hypothesized to be associated with outcomes of interest (Dunst, Trivette, & Raab, 2013; Wolery, 2011).

Why performance checklists? Performance checklists that include the key characteristics of early childhood intervention and related practices have been found to be effective tools for promoting practitioner use of the practices. Research spanning more than 30 years indicates that performance checklists have value-added benefits for improving knowledge and skill development (Casey & McWilliam, 2011; Dunst, Raab, & Hamby, 2016; Gorden, 2017; Harris, 1992; Lattimore, Stephens, Favell, & Risley, 1984; McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; McGee, Morrier, & Daly, 1999; Parsons, 2012; Rogers-Warren, 1982; Strasser, Mandive, Vergara, & Darricades, 2018; Trivette, Raab, & Dunst, 2014) where the benefits are enhanced when a practitioner is provided supportive guidance and feedback (Casey & McWilliam, 2011; Dunst et al., 2016; Gorden, 2017; Parsons, 2012).

3.1. Practice-Based Research Syntheses

A practice-based research synthesis focuses on unpacking and disentangling an intervention practice to identify which practice characteristics matter most in terms of explaining outcomes of interest (Dunst, 2016). This ensures practice indicators are evidence-informed where the relationship(s) between the indicators and the intended outcomes of the indicators have been empirically replicated in studies in a practice-based research synthesis (Dunst & Trivette, 2009c; Trivette & Dunst, 2013). Odom (2008), for example, noted that this type of research synthesis can help tease apart early childhood practices in ways that can inform how best to implement the core components, active ingredients, or key characteristics of the practices.

An example from adult-child interaction research is used to illustrate how the key characteristics of an intervention practice are identified and become the foundations for checklist indicators. Richter (2004), as part of a review of caregiver-child interactions, concluded that particular features of caregiver behavior “stand out” as being particularly important for optimal child growth and development. de Wolff and van IJzendoorn (1997) and Kassow and Dunst (2007a), in reviews of 75 studies including more than 4500 caregiver-child dyads, found that 10 different caregiver behaviors have been hypothesized to be important determinants of child outcomes. Dunst and Kassow (2008), in a practice-based secondary reanalysis of the 10 caregiver behaviors, found that four of the behaviors proved most important in terms of explaining variations in child outcomes. The four behaviors included both sensitivity to child behavior initiations and caregiver contingent responsiveness to child behavior. The results were used to develop interaction practices indicators on checklists to improve adult-child interactions (e.g., Raab & Dunst, 2006).

3.2. From Research Evidence to Performance Checklists

Babbie’s (2009) framework for differentiating between conceptualization, operationalization, and measurement has proven especially useful for developing different kinds of early childhood intervention performance checklists (Dunst et al., 2015). Conceptualization refers to the process of identifying or defining as specifically as possible the meaning of a construct or practice
practices (e.g., responsive parenting). Operationalization refers to the development or identification of the indicators that “make up” the key characteristics of a construct or practice (e.g., positive affect, following a child’s lead, sensitivity to child initiations, and contingent responsiveness to child behavior as indicators of responsive parenting). Measurement refers to the method used to determine the presence or absence, or degree to which, the indicators were used as part of a practitioner or parent using a practice (e.g., using a Likert scale).

The adaptation of Babbie’s (2009) conceptualization-operationalization-measurement framework had been especially useful for developing performance checklists. In terms of checklist development, conceptualization is the process used to describe the meaning of a particular type of practice (e.g., responsive teaching) and to distinguish the practice from other related practices (e.g., incidental teaching, milieu teaching). Dunst et al. (2012), for example, content analyzed six different naturalistic teaching methods and found that despite similarities in the different practices, there were procedural constructs unique to each practice. The analyses led to a more precise meaning of each type of instructional practice.

The process of identifying indicators of a practice is what is meant by operationalization. Results from practice-based research syntheses are especially informative for identifying evidence-informed indicators. Raab et al. (2013), for example, identified six evidence-based indicators of responsive teaching in a practice-based research syntheses of 46 studies including more than 5000 study participants. The findings in turn were used to develop a performance checklist for practitioners to promote parents’ use of responsive teaching with their children as part of everyday child learning activities (Raab, Trivette, Dunst, & Adkins, 2013).

Performance checklist measurement is intended to be used by a practitioner to do a self-assessment of how many and how well checklist indicators were able to be used for a particular checklist practice. As noted by both Gawande (2009) and Wilson (2013), performance checklists are cognitive tools that serve as reminders of intended practices and as benchmarks for determining if actual performance mirrored expected performance. Findings from several practice-based research syntheses of adult learning studies indicate that coach-facilitated practitioner self-assessment is associated with optimal learner benefits (Dunst & Hamby, 2015; Dunst, Trivette, & Hamby, 2010).

The Babbie (2009) framework, and its evidence-based extension (Dunst et al., 2015), have been used extensively to develop performance checklists for implementing different kinds of early childhood intervention practices (e.g., Dunst, Raab, & Trivette, 2013a; Dunst, Raab, Trivette, & Adkins, 2013; Raab & Dunst, 2006), planning and implementing professional development (Dunst & Trivette, 2009b), promoting early childhood practitioners’ knowledge and skills for using evidence-based practices (Roper & Dunst, 2006), strengthening caregiver capacity to provide children everyday learning opportunities (Raab, Dunst, & Trivette, 2013), using family-centered practices with adherence (L. L. Wilson & Dunst, 2004), improving outreach to increase referrals to early intervention (Dunst, 2006), and practitioner evaluation of professional development opportunities (Dunst, 2013). The value, importance, and utility of performance checklists have been established in studies showing that the fidelity of use of checklist practice indicators are associated with intended child and adult outcomes (e.g., Dunst et al., 2016; Trivette et al., 2014).

4. DEC Recommended Practices

The experiences, lessons learned, and findings from both the research reviewed in Chapter 3 and the field-test evaluations described in Chapters 4 to 7 have proven especially valuable in terms of informing the development of the framework and procedures for developing evidence-informed performance checklists described in this paper. The framework and procedures were recently used to develop performance checklists for early childhood practitioners to understand, adopt, and use different kinds of recommended early childhood intervention practices (Division for Early Childhood, 2014). The performance checklists were developed at the Early Childhood Technical Assistance (ECTA) Center at the Frank Porter Graham Institute at the University of North Carolina-Chapel Hill.

The DEC Recommended Practices include eight topic areas and 66 individual practices. The topic areas include assessment, environment, family, instruction, interaction, leadership, teaming and collaboration, and transition practices. The number of practices for each topic area varies from 2 (transitions) to 14 (leadership). The types of practices in each topic area vary from broad categories of practices (e.g., environment, transitions) but with no practice indicators to collections of interrelated practice indicators (e.g., interaction, instruction).

Four of the eight topic areas include child and family intervention practices (environment, family, instruction, and interactions), three topic areas include practitioner practices (assessment, teaming and collaboration, and transitions), and the other topic area includes program leadership practices. Close inspection of each individual topic area finds that the practices (broadly construed) differ considerably in their formatting, specificity, and internal coherence (i.e., how well the practices “go together” and operationally define particular types of
practices). For example, the environment topic area includes basically a list of different types of practices (e.g., universal design, assistive technology, adaptations, etc.) with no descriptions of the practice indicators that make up each type of practice. In contrast, the instruction topic area includes different types of instruction (embedded and systematic), practice characteristics (e.g., identifying child strengths, preferences, and interests; practitioners use of explicit feedback), and other recommended practices (e.g., duration of instruction needed to address child learning). The other topic area practices fall somewhere in between these extremes.

The lack of specificity of the DEC Recommended Practices both in terms of the interventions and outcomes of the practices, and the fact that individual practices are formatted so differently, makes their usefulness to early childhood intervention practices questionable. These among other factors were the foundations for developing performance checklists where each checklist includes operationally defined evidence-informed checklist indicators developed in the manner described above. Twenty-nine performance checklists were developed for the 66 DEC Recommended Practices (www.ectacenter.org/decrp/type-checklists.asp). Twenty-six assessment and intervention performance checklists were developed for all but the leadership topic area. Table 2-1 includes the practice areas and the 26 checklists organized by DEC recommended practices topic areas.

4.1. Early Childhood Intervention Performance Checklists

The process of developing performance checklists for the DEC Recommended Practices began by a content analysis of each topic area to identify either specific types of practices (e.g., environmental adaptations, assistive technology) or internally consistent sets of practice characteristics that are considered the active ingredients or key characteristics of a particular intervention practice (e.g., Dunst, Raab, & Trivette, 2013b). The content analysis was informed primarily by findings from research syntheses where different sets of practice characteristics were found to be related to the intended outcomes of the practice (see e.g., Dunst, 2016, 2017; Dunst & Espe-Sherwindt, 2016, 2017). This process resulted in the identification of different subsets of practices for each topic area where each subset described or defined a specific kind of practice (e.g., family capacity-building practices). The process mirrors what Babbie (2009) describes as conceptualization.

The evidence-informed subsets of practices for each topic area were then used to identify or develop a set of key characteristics or active ingredients of a particular kind of practice which were used as the performance checklists’ practice indicators. The sources of the indicators were the different DEC Recommended Practices topic area practices to the extent that they were evidence-based. For example, a content analysis of the 10 family practices was used to develop four performance checklists (family-centered practices, informed family decision-making, family engagement, family capacity-building) where the practice indicators were informed by the descriptors in the 10 family practices. This process is akin to what Babbie (2009)

Table 2-1
Early Childhood Assessment and Intervention Performance Checklists

<table>
<thead>
<tr>
<th>Practice Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment Checklists</td>
</tr>
<tr>
<td>1. Authentic Child Assessment Practices</td>
</tr>
<tr>
<td>2. Building on Child Strengths Practices</td>
</tr>
<tr>
<td>3. Engaging Families as Partners</td>
</tr>
<tr>
<td>4. Informed Clinical Reasoning</td>
</tr>
<tr>
<td>Environment Checklists</td>
</tr>
<tr>
<td>1. Assistive Technology</td>
</tr>
<tr>
<td>2. Child Physical Activity</td>
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<tr>
<td>3. Environmental Adaptations</td>
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<tr>
<td>4. Environmental Arrangements</td>
</tr>
<tr>
<td>5. Natural Learning Opportunities</td>
</tr>
<tr>
<td>Family Checklists</td>
</tr>
<tr>
<td>1. Family Capacity-Building Practices</td>
</tr>
<tr>
<td>2. Family-Centered Practices</td>
</tr>
<tr>
<td>3. Family Engagement Practices</td>
</tr>
<tr>
<td>4. Informed Family Decision-Making</td>
</tr>
<tr>
<td>Instruction Checklists</td>
</tr>
<tr>
<td>1. Embedded Instruction Practices</td>
</tr>
<tr>
<td>2. Naturalistic Instruction Practices</td>
</tr>
<tr>
<td>3. Systematic Instruction Practices</td>
</tr>
<tr>
<td>Interaction Checklists</td>
</tr>
<tr>
<td>1. Adult-Child Interaction Practices</td>
</tr>
<tr>
<td>2. Child-Child Interaction Practices</td>
</tr>
<tr>
<td>3. Child Social-Communication Interactions</td>
</tr>
<tr>
<td>4. Child Social-Emotional Competence</td>
</tr>
<tr>
<td>Teaming and Collaboration Checklists</td>
</tr>
<tr>
<td>1. Collaboration to Learn and Grow</td>
</tr>
<tr>
<td>2. Communication for Teaming</td>
</tr>
<tr>
<td>3. Families as Full Team Members</td>
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<tr>
<td>Transition Checklists</td>
</tr>
<tr>
<td>1. Hospital to Early Intervention</td>
</tr>
<tr>
<td>2. Early Intervention to Preschool</td>
</tr>
<tr>
<td>3. Preschool to Kindergarten</td>
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</table>
describes as operationalization.

The ability to use a checklist to plan interventions that include all or most of the checklist indicators or to assess whether the indicators were used as part of implementing the checklist practices is facilitated by a 4-point Likert scale ranging from Seldom or Never (0-25%), Some of the Time (25-50%), As Often As I Can (50-75%), or Most of the Time (75-100%) to incorporate each checklist indicator in an intervention plan or use the indicators as part of an intervention with a child or family. The use of the Likert scale to assess adherence to the practice indicators is what Babbie (2009) describes as measurement. This type of scale is often used to measure the fidelity of use of an intervention practice (Dunst, Trivette, et al., 2013; Rudnick, Freeman, & Century, 2012; Wolery, 2011).

Each performance checklist is formatted in the same way to facilitate practitioner understanding and use of the different sets of operationalized practice indicators. Each checklist includes: (1) a brief description of the purpose of the checklist and how it can be used to plan or evaluate a specific type of a practice, (2) a set of internally consistent evidence-informed operationalized practice characteristics, (3) a rating scale for assessing how much or how well the practice characteristics were able to be used by a practitioner, and (4) space for a practitioner to record notes. The goal was to have similarly formatted checklists in order for practitioners to have a set of tools informed by the DEC Recommended Practices to facilitate understanding and use of the checklist practice indicators.

Figure 2-2 shows one of the four checklists for the family practices. The checklist is intended to be used by a practitioner to promote and support parents’ or other primary caregivers’ abilities to provide their children development-enhancing learning opportunities as part of everyday activities and routines. The research foundations for the capacity-building practices include findings from research reviews of family-centered participatory help giving practices (Dempsey & Keen, 2008; Dunst, 2017; Dunst, Trivette, & Hamby, 2007, 2008; Rosenbaum, King, Law, King, & Evans, 1998) and adult learning studies of authentic learning opportunities (Dunst & Hamby, 2015; Dunst et al., 2010). Findings reported in these research reviews as well as results from individual studies (e.g., Dunst & Dempsey, 2007; Swanson et al., 2011; Woods & Brown, 2011) indicate that active parent participation in using everyday familiar activities as sources of child learning opportunities together with practitioner suggestions, supportive feedback, and encouragement, are associated with changes and improvements in parenting confidence and competence (Dunst et al., 2008, 2010).

The indicators on the family capacity-building checklist were developed by unpacking two DEC family recommended practices that include parents’ active participation in acquiring an understanding and use of everyday activities as sources of child learning and the family strengthening consequences associated with the use of the practices (Dunst et al., 2007, 2008). The nine checklist indicators incorporate this information into the checklist content in ways that constitute an internally consistent set of practices that, taken together, operationalize the purposes and outcomes of family capacity-building practices. The 4-point Likert scale on the checklist provides a practitioner one way of determining if he or she was able to use the practice indicators to plan or evaluate his or her performance.

5. Overview of the Performance Checklists

The performance checklists include a broad range of child-, family-, and practitioner-focused assessment and intervention practices. The following includes brief descriptions of the particular practices on each of the 29 checklists to provide readers a foundation for understanding how checklists for different kinds of practices can be formatted in similar ways.

5.1. Assessment Practices Checklists

The Authentic Child Assessment Practices Checklist includes methods and strategies for observing child participation in everyday activities, the learning opportunities afforded a child in the activities, and identifying the person and environmental factors influencing child engagement and learning in the activities (Bagnato, 2007). A main focus of authentic child assessment practices is identification of the child, adult, and setting factors that influence child engagement and learning in everyday activities (Dunst, 2008) and the use of this information for planning and implementing interventions for promoting child learning and development (Bagnato, McLean, Macy, & Neisworth, 2011).

The Building on Child Strengths Practices Checklist includes practice characteristics for identifying child behavior propensities that encourage and sustain child engagement in everyday learning activities and child competencies while involved in the activities (Dunst & Raab, 2012; Fenton, Walsh, Wong, & Cumming, 2015). The focus on child strengths (interests, preferences, abilities, etc.) is based on the fact that these particular behavior propensities influence child engagement in everyday activities and contribute to functional child learning and development (Chen, Krechevsky, & Viens, 1998; Haney & Cavallaro, 1996; Hidi & Anderson, 1992).

The Informed Clinical Reasoning Checklist in-
Family Capacity-Building Practices Checklist

This checklist includes practices for engaging parents and other family members in using child-level interventions to promote child learning and development in ways that strengthen parenting confidence and competence.

The capacity-building practices are used by a practitioner to promote a parent’s understanding and use of everyday activities and routines as sources of child learning opportunities.

The checklist can be used by a practitioner to plan intervention sessions with parents and other family members. The checklist also can be used to do a self-evaluation to determine if practitioner capacity-building practices actively involved parents in providing their children everyday learning opportunities.

Please indicate which of the practice characteristics you were able to use as part of parent and family member involvement in providing child learning opportunities:

<table>
<thead>
<tr>
<th>Seldom or Never (0-25%)</th>
<th>Some of the Time (25-50%)</th>
<th>As Often As I Can (50-75%)</th>
<th>Most of the Time (75-100%)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Describe the use and benefits of everyday activities as sources of child learning opportunities</td>
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<tr>
<td>2. Illustrate or demonstrate child engagement in a variety of everyday activities</td>
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<td>3. Describe and illustrate the importance of child interests and preferences in promoting child learning</td>
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<td>4. Use an everyday activity checklist to have a parent select which activities would be easiest for the parent to use</td>
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<tr>
<td>5. Together with the parent, engage the child in a familiar everyday activity</td>
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<tr>
<td>6. Illustrate or demonstrate how adult responsiveness to child behavior is used to promote child learning in everyday activities</td>
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<tr>
<td>7. Provide supportive guidance, feedback, and suggestions to the parent throughout the capacity-building activities</td>
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<tr>
<td>8. Together with the parent, identify five or six everyday activities that will be used as child learning opportunities</td>
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<tr>
<td>9. Engage the parent in conversations about which activities will be used for child learning and which parent responses will be used to promote learning</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This checklist and other ECTA Center products are available at http://www.ectacenter.org. Copyright © 2017 Early Childhood Technical Assistance Center. Reprinted with permission.

Figure 2-2. Example of a performance checklist for practitioner-implemented family capacity-building practices.
cludes methods and strategies for gathering information about child functioning in everyday activities and interactions with different people and materials for eligibility determination (Bagnato, McKeating-Esterle, Fevola, Bortolamasi, & Neisworth, 2008; de Sam Lazaro, 2017) or to determine which types of early childhood interventions are needed to promote child learning and development (Bagnato, 2007; Hunt, Johnson, Owen, Ormerod, & Babbitt, 1990; Sampers, Cooley, Cornelius, & Shook, 1996). The terms clinical reasoning, informed opinion, and clinical judgment are often used interchangeably to describe either or both purposes (Alfaro-LeFevre, 2011; Neisworth & Bagnato, 2011; Schalock & Luckasson, 2014).

The Engaging Families as Partners Assessment Checklist includes methods and strategies for involving parents and other family members in a child’s behavioral and developmental assessment and for planning functional interventions (Larsson, 2000; Nash, 1990; Ray, Pewitt-Kinder, & George, 2009). The checklist indicators focus on family members as unique and important sources of information for identifying which types of intervention practices are best suited for promoting child participation, engagement, and learning in everyday activities (Guess, Baker, Miller, & Tucker, 2006).

5.2. Environmental Practices Checklists

The Natural Learning Opportunities Checklist include practice indicators for using everyday activities as sources of child learning opportunities (Dunst, Hamby, Trivette, Raab, & Bruder, 2000) and the adult behavior to both engage a child in the activities and to support and strengthen child learning while engaged in the activities (Dunst & Swanson, 2006). The focus of the intervention practice is naturally occurring child learning opportunities (Spagnola & Fiese, 2007) and responsive caregiving practices as an instructional strategy for supporting child learning (Landry, Taylor, Gutten tag, & Smith, 2008).

The Child Physical Activity Checklist includes different kinds of activities for engaging children in physical movement and exercise (Sanders, 2002). The Environmental Arrangements Checklist includes practice indicators for ensuring indoor and outdoor spaces, equipment, and materials provide opportunities for active child play and physical movement (Kritchevsky, Prescott, & Walling, 1977). The focus of both types of practices is promoting and improving child physical fitness and well-being (Evans, Kliewer, & Martin, 1991).

The Assistive Technology Checklist includes practices for using different types of low tech (e.g., switch activated toys) and high tech (e.g., iPad) devices for promoting child participation in everyday learning activities (Mistrett, 2004). The Environmental Adaptations Checklist includes practices for modifying or arranging the physical environment, scheduling, everyday activities, learning materials, instruction, etc. to support and promote child participation in social and nonsocial activities (Campbell, Milbourne, & Wilcox, 2008). Both checklist practices are intended to reduce or eliminate barriers to participation in activities for promoting child learning and development (Campbell, Kennedy, & Milbourne, 2012; Scherer & Glueckauf, 2005).

5.3. Family-Focused Practices Checklists

The Family-Centered Practices Checklist includes the particular types of practitioner help giving practices for collaborating and interacting with family members in a competency-enhancing and strengths-based manner (Dunst & Espe-Sherwindt, 2016). Family-centered practices include, but are not limited to, help giving behavior that treats family members with dignity and respect, informed family decision-making, nonjudgmental practitioner advice and guidance, recognizing and building on family strengths, and providing family members support and guidance as part of obtaining family-identified resources and supports.

The Informed Family Decision-Making Checklist includes methods and strategies for ensuring intervention plans and practices are responsive to family choices and priorities (Espe-Sherwindt, 2008). The Family Engagement Practices Checklist includes methods and strategies for both supporting and strengthening family capacity to be actively involved in obtaining family-identified supports and resources (Halgunseth, 2009) or engaging parents and other family members in different kinds of intervention practices (Dunst & Espe-Sherwindt, 2016). The two checklists include, respectively, relational and participatory help giving practices that, taken together, are the key characteristics of capacity-building family-centered practices (Dunst & Trivette, 2009a; Trivette & Dunst, 2007).

The Family Capacity-Building Practices Checklist includes practice indicators for promoting, supporting, and strengthening parents’ use of everyday activities as sources of naturally occurring child learning opportunities in ways that facilitate not only child competence but also strengthen parenting competence and confidence (Dunst & Trivette, 2009a; Woods & Brown, 2011). The checklist practices are a particular type of participatory help giving specifically focusing on supporting and strengthening parents’ use of everyday activities for promoting child learning and development (Dunst & Espe-Sherwindt, 2016).

5.4. Instructional Practices Checklists

The three instructional practices checklists (Naturalistic Instruction, Embedded Instruction, Systematic
**Instruction** each include methods and strategies that practitioners, parents, and other primary caregivers can use to support and strengthen child acquisition of functional behavior in naturally occurring everyday activities or as part of planned instructional episodes; for example (Bailey & Wolery, 1992; Rakap & Parlak-Rakap, 2011; Snyder et al., 2015). The checklist practices include a number of instructional options for tailoring teaching strategies to the individual goals for and needs of different children (Mahoney, Wheeden, & Perales, 2004; Page & Tayler, 2016; Wolery, 1994). The checklist indicators include, but are not limited to, the key characteristics of incidental teaching (Brown, McEvoy, & Bishop, 1991; McDuffie, 2013), milieu teaching (Curiel & Sainato, 2015), responsive teaching (Raab & Dunst, 2009), and direct instruction (Weisberg, 1988).

### 5.5. Interactional Practices Checklists

The **Adult-Child Interaction Checklist** includes practice indicators for strengthening adult-child interactions (Elicker & Fortner-Wood, 1995; Landry et al., 2008) whereas the **Child-Child Interaction Checklist** includes practice indicators for promoting mutually interesting child interactions with friends or peers (Brown, Odom, & Conroy, 2001; Rubin, Bukowski, & Parker, 1998). Both checklists emphasize adult contingent responsiveness (Dunst, Lowe, & Bartholomew, 1990; Williams, 2001) to child interactional behavior, the use of naturally occurring consequences for reinforcing child interactional behavior, and strategies for encouraging child behavior elaborations using modeling, imitation, expansions, scaffolding, and other instructional supports (Dunst et al., 2012).

The **Child Social-Emotional Competence Checklist** and the **Child Social-Communication Interaction Checklist** both include adult interactional behavior indicators for supporting and strengthening, respectively, child social behavior in interactions with others (Dunst, Raab, & Hamby, 2017; Popp & Wilcox, 2012) and a child’s ability to communicate effectively with others (Dunst et al., 1990; Paavola, Kunnari, Moilanen, & Lehtihalms, 2005). The practice indicators, however, are also applicable for promoting child play, cognitive, motor, and other behavioral and developmental outcomes (Kassow & Dunst, 2007b; Lancioni et al., 2008; Landry et al., 2006; Roggman, Boyce, & Innocenti, 2008).

### 5.6. Teaming and Collaboration Practices Checklists

These checklists include methods and strategies for improving team member communication and team functioning (Communication for Teaming and Collaboration Checklist), building effective teaming practices (Collaboration to Learn and Grow Checklist), and meaningfully involving family members on assessment and intervention teams (Families as Full Team Members Checklist). The checklist practices emphasize the knowledge and expertise of both practitioners and parents (Larsson, 2000; McLean, Wolery, & Bailey, 2004; Raver & Childress, 2015) and how sharing that knowledge and expertise can improve team functioning and intervention practices and outcomes (Antoniadis & Videland, 1991; Lambie, 2004; Nash, 1990).

### 5.7. Transition Practices Checklists

Young children with and without disabilities, medical conditions, or other “special needs” characteristics experience many different transitions between birth and elementary school (Kagan & Tarrant, 2010; Rosenkoetter, Hains, & Fowler, 1994). The three transition checklists (Hospital to Early Intervention, Early Intervention to Preschool, Preschool to Kindergarten) each include methods and strategies for practitioners from both transitioning and receiving programs and agencies to use with children and families to ensure transitions are smooth and effective (Rosenkoetter et al., 1994; Rous, Myers, & Stricklin, 2007). The checklists also include practices for ensuring transitions between programs and settings are done in ways that facilitate positive child and family adjustments and adaptations before, during, and after transitions; for example (Affleck, Tennen, Rowe, Roscher, & Walker, 1989; Hamblin-Wilson & Thurman, 1990; Worthington, 1995).

### 6. Discussion

As noted by both Gawande (2009) and Wilson (2013), performance checklists serve two important purposes: (1) they specify the actions or steps that define expected or desired performance and (2) they reduce or eliminate the likelihood that a practitioner will miss or fail to enact one or more steps or actions. Both experts note, however, that checklists are not the answer to all problems or meet all needs. When, then, are checklists warranted as mnemonic devices or cognitive tools for improving practitioner competence? Gawande (2009) describes work by Glouberman and Zimmerman (2003) on the science of complexity that indicates different problems and tasks can be categorized as simple, complicated, or complex. Simple tasks such as cooking, household chores, and raking leaves do not warrant the use of checklists because once they are learned they are carried out as a matter of routine. In contrast, checklists can be especially useful for implementing both complicated and complex tasks. Complicated tasks include such things as flying an airplane, building a rocket, and heart surgery. These are complicated tasks.
but with enough experience and guidance, “there is a high degree of certainty of the outcomes” (Glouberman & Zimmerman, 2003, p. 22).

Interestingly enough, Glouberman and Zimmerman (2003) describe raising a child as a complex task. This is the case because no two children are alike, child rearing practices are likely to vary for individual children, and perhaps most important, “their outcomes remain highly uncertain” (Gawande, 2009, p. 49). The latter is an operational characteristic of complex tasks (Glouberman & Zimmerman, 2003). This child rearing example of a complex problem is easily extended to early childhood practitioners who in the course of their work interact not only with many different children who are “not alike,” but also families who differ considerably in their complexities as well. Herein lies the value of checklists. The more checklists a practitioner has at his or her disposal, the more likely a tool is available to carry out particular tasks tailored to individual situations and contexts. This in turn increases the likelihood that tasks are completed as intended and have intended outcomes and benefits.

### 6.1. Strengths and Limitations

The procedure for developing checklists described in this paper resulted in similarly formatted tools so that as one moves from one checklist to another checklist, no relearning is necessary (Jaber, 2011). This is in marked contrast to the rather haphazard formatting of the DEC Recommended Practices (Division for Early Childhood, 2014) where the practices differ considerably in their formatting, specificity, and comprehensiveness. The procedure also resulted in individual checklists for a particular practice and a set of internally consistent indicators that, taken together, operationally define the key characteristics of the practice (Dunst, 2016). The fact that the procedure itself results in evidence-informed indicators based on findings from practice-based research syntheses increases the likelihood that the use of the practice indicators will have intended benefits and outcomes (e.g., Dunst, 2016). This is also in marked contrast to the DEC Recommended Practices (Division for Early Childhood, 2014) that include no evidence for the practices in each topic area. The shortcomings and limitations of the DEC Recommended Practices were, to a large degree, the reason the ECTA performance checklists were developed in order to have evidence-informed tools that practitioners could use to implement practices that mirror the intent of the DEC Recommended Practices, where the checklists themselves provide a sense of coherence and order in terms of the “make up” of different early childhood intervention practices.

Checklists in general, and the types described in this paper in particular, are not for everyone or every purpose. Checklists, for example, are not able to account for every possible contextual or situational variation that an early childhood intervention practitioner will likely encounter in day-to-day practice (C. Wilson, 2013). Similarly, checklists may not fit well with a practitioners’ learning style and stifle rather than facilitate skill development (Brady, 2013). These, as well as other factors, need to be considered when deciding if a checklist is an appropriate tool to promote practitioner understanding and competence.

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3. Research Evidence for the Early Childhood Intervention Checklists

Carl J. Dunst

Abstract

The research evidence for early childhood intervention practices performance checklists is described. Performance checklists include lists of the tasks or steps required to complete a practice competently. The checklists were developed using a conceptualization-operationalization-measurement framework where findings from research syntheses and empirical studies informed the selection or development of checklist indicators. This paper includes a meta-review of empirical evidence demonstrating practice-outcome relationships consistent with the purposes and goals of each of the performance checklists. Findings from more than 200 narrative reviews, meta-analyses, integrative reviews, and other types of research syntheses were the sources of evidence and foundations for 26 early childhood intervention performance checklists. The research evidence, taken together, indicates that the checklist indicators have a substantial evidence base for each of the performance checklist practices. Strengths and limitations of the meta-review are described.

Keywords: Early childhood intervention; performance checklists; checklist practice indicators; practice-outcome relationships; research evidence

1. Introduction

Performance excellence is an explicit goal in most, if not all, professions (Blazey, 2013; National Institute of Standards and Technology, 2017). According to Gawande (2007), excellence is achieved by attending to the steps required to complete a task successfully, ensuring that the knowledge and skills needed to complete a task are aligned with operationally defined performance standards, and that there is intentional and deliberate monitoring of actual performance against expected performance. As also noted by Gawande (2009), all of this can be accomplished by using checklists for specifying the most important steps or elements of a practice.

Checklists are now widely used in a number of fields and professions for planning, monitoring, and evaluating performance, products, and procedures (Frank, 2006; Karges-Bone, 2000; Oxman, 1994; Roggman et al., 2013; Roper & Dunst, 2006; Wilson, 2013). Procedural or performance checklists include lists of the tasks, steps, or behavior indicators required to complete different practices in a competent manner (Wilson, 2013). Evidence-informed performance checklists include indicators based on research findings establishing an empirical relationship between the checklist practice indicators and intended or expected outcomes (Dunst, 2017b).

Atul Gawande (2009), in his book *The Checklist Manifesto: How to Get Things Right*, describes two types of checklists: Do-confirm and Read-do. Do-confirm checklists are used on a post-hoc basis to determine if the checklist indicators were used as intended. Read-do checklists are used on an a priori basis to review expectant performance and then serve as mnemonic devices for increasing the likelihood that actual performance mirrors expected performance. Evidence-informed performance checklists are best described as Review-Do-Confirm tools. Checklist indicators operationally define a set of interrelated practice characteristics that “serve as concrete reminders of the tasks that need to be performed” (Wilson, 2013) (p. 4, emphasis added) and then are used to do a self-evaluation or coach-facilitated evaluation of how well one was able to complete the tasks as operationally defined.

This paper includes (1) an overview of the procedures used to develop evidence-informed early childhood intervention performance checklists, (2) brief descriptions of 26 early childhood intervention checklists, and (3) a meta-review of the sources of research evidence for the checklist practices and practice indicators. Early childhood intervention includes the experiences and opportunities afforded young children birth to 8 years of age and their parents or other primary caregivers to promote...
and enhance child, parent, and family competence and confidence (Feldman, 2004; Groark, Eidelman, Maude, & Kaczmarek, 2011; Sukkar, Dunst, & Kirkby, 2017). The checklists were developed at the Early Childhood Technical Assistance (ECTA) Center at the University of North Carolina – Chapel Hill. The author and his colleagues at the ECTA Center developed the checklists using early childhood intervention recommended practices (Division for Early Childhood, 2014) as the foundations for (1) unpacking the recommended practices to identify internally consistent sets of practice indicators where (2) findings from research syntheses and empirical studies were used to select or develop practice indicators which research indicates are empirically related to outcomes of interest (Dunst, 2017b).

2. Procedure for Developing Evidence-Informed Performance Checklists

Figure 3-1 shows the framework used to develop the performance checklists. The framework is based on Babbie’s (2009) interrelated steps of conceptualization, operationalization, and measurement. In terms of checklist development, conceptualization refers to the characteristics that define an early childhood intervention practice, operationalization refers to behavior indicators that are the key characteristics of a practice, and measurement refers to the procedures used for knowing if the practice characteristics were used as intended (Dunst, 2017b; Dunst, Trivette, & Raab, 2015).

The performance checklist characteristics were first informed by the Council for Exceptional Children, Division for Early Childhood Early Intervention/Early Childhood Special Education Recommended Practices (Division for Early Childhood, 2014). The Division for Early Childhood recommended practices include seven assessment and intervention practice areas. Twenty-six checklists were developed for seven practice areas (assessment practices, environment practices, family practices, instruction practices, interaction practices, teaming and collaboration practices, and transition practices). An eighth practice area, leadership, has three checklists but they include neither child nor family assessment or intervention practices.

The checklists are all formatted (organized) in the same way to facilitate practitioner understanding and use of the checklist practice indicators. As noted by Schwartz (2014), “Applying organization to new learning causes the learner to focus on the meaning of the material and thus increases the depth of processing…[where] organizing what we learn into [similarly formatted] categories and meaning-based [categories and] connections… improves encoding” (p. 107). Chapter 2 includes brief descriptions of each of the 26 performance checklists.

Each checklist includes a brief description of an early childhood intervention practice and the intended outcome or benefit of the practice. The brief descriptions also include a statement of the intended context(s) for using the practice and how a practitioner can use the checklist indicators to prepare to implement the practice (Review-do) and to evaluate how well the practice characteristics were used (Do-confirm). Each checklist includes a list of practice indicators (key elements, active ingredients, procedural steps, etc.) that, taken together, operationally define the key characteristics or active ingredients of a particular intervention practice. The checklists include a 4-point Likert scale for a practitioner to do a self-evaluation of “how well” the practice characteristics were used with a child or family or for a coach or supervisor to do a coach-facilitated practitioner self-evaluation for promoting learner mastery (Dunst, Trivette, & Hamby, 2010).

The practices on each checklist (e.g., naturalistic instruction) are conceptualized as a particular type of early childhood intervention practice (e.g., Snyder et al., 2015). The evidence for the checklist indicators was used to operationalize the key characteristics of the practice (e.g., following a child’s lead, sensitivity to child behavioral cues, responding promptly and positively to child behavior, and providing natural consequences to reinforce child behavior initiations as indicators of naturalistic instruction) (e.g., Dunst, Raab, & Trivette, 2012). Figure 3-2 illustrates the checklist formatting.
for \textit{Naturalistic Instructional Practices Checklist}. The checklist includes seven key characteristics of this particular teaching strategy. The checklist also includes a description of the purpose of the practice, where and how the practice is used to reinforce child learning, and guidelines for using the checklist to plan interventions (Read-do) and evaluate how well the practice was used with a child (Do-confirm) (Gawande, 2009). All of the performance checklists are formatted in an identical manner to facilitate practitioner understanding and use of the checklist practices.

3. Methodological Approach

3.1. Sources of Research Evidence

Findings from different types of research syntheses were the primary sources of evidence for the checklist practices. The meta-review described in this paper included the integration of findings in research syntheses of studies where results informed the selection or development of performance checklist indicators. Individual empirical studies were used as evidence for checklist indicators when findings elucidated the relationship between practice indicators and outcomes of interest.

Research findings were considered the foundations for checklist practices \textit{when and only when} an intervention practice or one or more practice characteristics have been found to be empirically related to the intended outcomes of the practices. Accordingly, there needed to be a \textit{functional} or \textit{statistical} relationship between an independent or intervention variable and a dependent or outcome variable to claim that the checklist practice indicators were evidence-informed (Dunst, Trivette, & Cutspec, 2007).

A functional relationship between an intervention practice and outcomes of interest is established by demonstrating that a change (improvement) on an outcome of interest is reliably associated with the introduction and continued use of an intervention practice (e.g., Odom & Strain, 2002). A statistical relationship between an intervention practice and outcomes of interest is established by demonstrating that variations in the use of an intervention practice are reliably related to variations in the outcomes the intervention (S. L. Morgan, 2013). Both types of relationships are considered reliable when the practice-outcome relationships in different studies of the same or similar intervention practices have been replicated by different investigators of different studies or by the same investigators in replication studies.

3.2. Types of Research Evidence

Two types of practice-outcome relationships were the focus of review and analysis. The first, which makes up the bulk of the evidence, was research on practitioner, parent, or other primary caregiver use of an intervention practice to affect changes in child, parent, parent-child, or family functioning. The second was research on instructor, trainer, coach, or others use of an implementation practice to promote practitioner, parent, or other primary caregiver use of an intervention practice. Figure 3-3 shows the relationships between these two types of practices (see especially Dunst, Trivette, & Raab, 2013) and different categories of outcomes. Intervention practices would be expected to be directly related to outcomes of interest, and implementation practices would be expected to be directly related to intervention practices. Implementation practices would also be expected to be indirectly related to outcomes of interest mediated by intervention practices. Mediated relationships were evaluated in research syntheses of studies investigating pathways of influence between different implementation and intervention practices and outcomes of interest using structural equation modeling or other type of path analysis (e.g., Bailey, Nelson, Hebbler, & Spiker, 2007; Dunst, Hamby, & Brookfield, 2007; Dunst, Raab, & Hamby, 2016; G. King, S. King, Rosenbaum, & Goffin, 1999; Nicolaides et al., 2014; Petrenchik & King, 2011).
Naturalistic Instructional Practices Checklist

This checklist includes the characteristics of naturalistic instructional practices that can be used by a practitioner, parent, or other family member to support and strengthen child learning and development while a child is engaged in everyday home, community, or classroom activities. The instructional practice is used when a child is already participating in an activity and adult (practitioner or parent) behavior are used to sustain engagement, provide opportunities for child learning, and to encourage child behavior elaborations in the activities.

The checklist indicators can be used by a practitioner to develop a plan to use the practices with a child or to promote a parent’s use of the practices. The checklist rating scale can be used to do a self-evaluation to determine whether the different practice characteristics were part of using the practices with a child or promoting a parent’s use of the practices.

<table>
<thead>
<tr>
<th>Practitioner: __________________________</th>
<th>Child: __________________________</th>
<th>Date: ________________</th>
</tr>
</thead>
</table>

Please indicate which practice characteristics you were able to use as part of a child’s engagement in everyday activities:

<table>
<thead>
<tr>
<th>Seldom or Never (0-25%)</th>
<th>Some of the Time (25-50%)</th>
<th>As Often As I Can (50-75%)</th>
<th>Most of the Time (75-100%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Follow the child’s lead while he or she is engaged in everyday activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Pay particular attention to the child behavior maintaining child engagement in the everyday activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Provide natural (reinforcing) consequences in response to child-initiated behavior</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Respond promptly and positively to the child’s attempts to repeat or practice the same behaviors or to try something new or different</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Provide any necessary supports, accommodations, or adaptations to maintain child engagement in the activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Encourage continued child engagement in adult-child interactions by engaging in turn taking and other joint attention activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Encourage child behavior elaborations by modeling new ways of doing things during the child’s everyday activities, asking inferential questions (e.g., open-ended questions), or by prompting child behavior competence</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes

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Figure 3-2. Example of an early childhood intervention practices performance checklist.
particular checklist practices, were the preferred sources of evidence because these types of research syntheses focus on *unpacking* and *disentangling* an implementation or intervention practice to identify the particular practice characteristics that “matter most” in terms of explaining outcomes of interest (Dunst, 2016). Those characteristics, in turn, are used as evidence-informed indicators for a checklist practice.

### 3.4. Scope of Evidence

The evidence for each of the performance checklists is included in Appendix A of this monograph. The seven early childhood intervention practice areas each include a table with the sources of evidence for the checklist practices. The tables are included in Appendices A-1 to A-7. Each source of evidence is coded as either a research synthesis (RS) or an efficacy or effectiveness study (ES). Each appendix also includes a column showing which sources of evidence are the research foundations for which particular checklist(s). Research syntheses and empirical studies cited in the text are ones considered the best evidence for the checklist practices.

More than 200 research syntheses included evidence for the relationships between the checklist practices and the practice outcomes. The majority (72%) of the syntheses were published in peer reviewed journals, 15% were published in books or book chapters, 6% were published as web-based publications pursuant to cooperative agreements with the U.S. Department of Education, and 7% were available through a number of other sources. Figure 3-4 shows the number of research syntheses for each practice area. The average number of syntheses for the seven practice areas was 32.29 (SD = 7.43). The number of syntheses per practice area ranged between 23 (transition practices) and 45 (environment practices). The average number of research syntheses for each of the 26 performance checklist practice areas was 8.74 (SD = 1.49). The average number of research syntheses for the performance checklists in each practice area ranged between 8 (transitions) and 12 (teaming).

### 3.5. Caveats

Several caveats are mentioned to place the research evidence in empirical and practical context. First, the research evidence is illustrative and not exhaustive of the research foundations for the checklist practices. The particular research syntheses cited in the text are ones most germane to the purpose of this meta-review although all of the research syntheses and studies listed in the appendices include analyses of practice-outcome relationships. Second, certain seminal or other primary studies may not be listed on the tables because they are included in one or more research syntheses. Those studies include, but are not limited to, ones that have shaped and influenced our understanding of early childhood intervention practices. Third, some research syntheses included a mix of studies, some of which were investigations of practice-outcome relationships and some of which were...
descriptive or qualitative in nature. Descriptive or qualitative information that did not include examination of practice-outcome relationships was disregarded in this meta-review. Fourth, research syntheses published since the checklists were first developed and subsequently revised are not included on the tables but cited in the text when they include new evidence for the relationship between the checklist practices and intended practice outcomes. These research syntheses all contain analyses of implementation or intervention practices-outcome relationships. Fifth, quite a few research syntheses include evidence for two or more performance checklists and are listed in multiple tables in the appendices. This was not unexpected given the fact that so many performance checklists include interrelated characteristics of different early childhood implementation or intervention practices.

4. Research Evidence

4.1. Assessment Practices

Appendix A-1 includes the sources of evidence for the four assessment checklist practices (see Table 1). The majority of evidence is performance checklist specific or includes evidence for only two compatible checklists (e.g., authentic assessment practices and building on child strengths; authentic assessment practices and informed clinical opinion). The sources of evidence include findings primarily in research syntheses of studies investigating the relationships between the checklist practices and the intended outcomes of the practices. The types of evidence come from studies investigating the conditions under which the assessment practices are most effective (e.g., Finello, 2011; Larsson, 2000; Shernoff, Hill, Danis, Leventhal, & Wakschlag, 2014), the differential effects of contrasting types of assessment-related practices (e.g., Bagnato, 1984; Lobo, Paul, Mackley, Maher, & Galloway, 2014; Mott & Dunst, 2006), and the person and environmental factors associated with variations in assessment outcomes (e.g., Haney & Cavallaro, 1996; Mihaylov, Jarvis, Colver, & Beresford, 2004; Van keer & Maes, 2016).

4.1.1. Authentic Child Assessment Practices. Macy and Bagnato (2013) describe authentic assessment as the systematic observation and recording of child behavior in everyday activities by persons familiar with and knowledgeable about a child’s life. Dunst (2008) added that authentic or ecological assessment practices should include identification of the person and setting factors that influence variations in child behavior and functioning in different everyday activities.

The research foundations for authentic child assessment practices include knowledge of the everyday activities, routines, and rituals that are the contexts for children to learn functional and culturally meaningful behavior (Dunst, Bruder, Trivette, & Hamby, 2005; Dunst, Hamby, Trivette, Raab, & Bruder, 2000; Fiese et al., 2002; Spagnola & Fiese, 2007) and the social and nonsocial factors that shape and influence acquisition of and variations in child behavior in those activities (Bult, Verschuren, Jongmans, Lindeman, & Ketelaar, 2011; Dunst, Jones, Johnson, Raab, & Hamby, 2011; Dunst, Valentine, Raab, & Hamby, 2013a; Fiese et al., 2002; Petrenchik & King, 2011; Weisner, 2002). Everyday family, community, and preschool/child care life is made up of literally hundreds of different kinds of activities that are associated with context specific child behavior (Dunst et al., 2000; Fiese et al., 2002; Fuligni, Howes, Huang, Hong, & Lara-Cinisomo, 2012). Participation in everyday activities, and its effects on child behavior, have been found to be associated with both naturally occurring events (Mårtensson et al., 2009; Mihaylov et al., 2004) and the intentional use of different types of activities to influence acquisition of child behavior (Kemp, Kishida, Carter, & Sweller, 2013; Kern, Choutka, & Sokol, 2002; Trivette, Dunst, Simkus, & Hamby, 2013).

Three sets of factors influence variations in child behavior in everyday activities: The characteristics of everyday activities experienced by a developing person, the behavior of other people in the settings, and the characteristics of the developing person himself or herself (Bronfenbrenner, 1993). The characteristics of everyday activities that influence child behavior include, but are not limited to, activity type (e.g., Kemp et al., 2013), material available to a child in the activities (A.-H. Kim et al., 2003), activity organization (Li, 2006), environmental arrangements (Bailey & Wolery, 1992; Odom et al., 2004), and adaptations to everyday activities (see Appendix A-2). The person factors that influence child participation in and behavior in everyday activities include the behavior of adults interacting with a child in everyday activities (Bult, 2012; Chiarello et al., 2010; Tramonte, Gauthier, & Willms, 2015; Wishard, Shivers, Howes, & Ritchie, 2003). The person factors influencing child behavior also include, but are not limited to, the instructional practices (see Appendix A-4) and interactional behavior (see Appendix A-5) used by early childhood practitioners, parents, and other primary caregivers to shape and influence child acquisition of functional behavior.

The setting (activity) factors that influence child behavior in addition to those listed above include environmental arrangements (see Appendix A-2) that promote child participation in everyday activities and sustain engagement and learning in the activities (e.g., P. H. Campbell & Sawyer, 2007; Odom, Brown, Schwartz,
Zercher, & Sandall, 2002; Palisano et al., 2012; Palisano, Chiarello, McCoy, Bartlett, & An, 2015; Van keer & Maes, 2016). The characteristics of everyday activities that invite and encourage child participation in interactions with the social and nonsocial environment are described as development-instigating factors whereas the behavioral consequences of these factors are described as development-enhancing factors (Bronfenbrenner, 1992, 1999). Wachs’ (2000) review of social and nonsocial factors influencing child learning indicates that multiple factors are related to variations in child behavior and development and that they affect child functioning in complex ways (Wachs, 1999).

The child characteristics that influence behavior in everyday activities include, but are not limited to, the effects of children’s temperaments, etiologies, and severity of delays on learning and development (e.g., Bailey, Hatton, Mesibov, Ament, & Skinner, 2000; Chiarello et al., 2016; Dunst, 1998; Granlund, Wilder, & Almqvist, 2013; Rosenberg, Bart, Ratzon, & Jarus, 2013) and children’s behavior propensities that encourage participation and sustained engagement in the activities (see Child Strengths-Based Practices below). The child characteristics that are the primary focus of authentic assessment practices are ones that can be manipulated as interventions or incorporated into interventions (Blair, Umbreit, & Bos, 1999; Kearney & McKnight, 1997) whereas child factors such as type of disability or gender are examined in terms of their moderating effects (Crosby, 2005; Warren et al., 2008). The latter type of assessment practice has been found effective in terms of which intervention practices are most appropriate for children with different diagnoses and etiologies (Ware, 2016).

Authentic child assessment practices that focus on all of these different person and setting factors have been found to result in a better understanding of child behavior and functioning and the conditions under which child learning is most likely to be optimized (Benner, 1992; de Sam Lazar, 2017; Fiss et al., 2013; Haney & Cavallaro, 1996; Palisano et al., 2012). Knowledge of the conditions under which child learning is optimized has proven especially informative for identifying child-specific everyday learning experiences for promoting and strengthening child development (Fuligni et al., 2012; Humphry, 2002; Trivette, Dunst, & Hamby, 2004) as well as the confidence and competence of persons engaging children in those activities (Coleman & Karraker, 2003; Trivette et al., 2004).

4.1.2. Child Strengths-Based Practices. Two child-related factors that influence child engagement in everyday activities are children’s behavioral propensities and the social and nonsocial environmental factors that encourage and sustain child participation in the activities (Bult et al., 2011; Buntinx, 2013; Dunst, Trivette, & Hamby, 2012b; Raab & Dunst, 2007). The research foundations for child strengths-based assessment and intervention practices include studies of either or both child-related factors influencing child learning and development.

The child-related factors that have been found to be particularly important are situational interests and child personal interests (Dunst & Raab, 2012; Renninger, Hidi, & Krapp, 1992). Situational interests include the interestingness of social and nonsocial environmental (setting) factors that evoke and sustain child engagement in everyday activities (Schraw & Lehman, 2001). Personal interests include a child’s preferences, likes, favorites, etc. that motivate him or her to engage in desired activities or actions (Renninger, 1992). Both types of interests, and their effects on learning and development, are the research foundations for the child strengths-based practices checklist (Dunst, Jones, et al., 2011; Raab, Dunst, & Hamby, 2013).

Findings in research syntheses of young children with and without disabilities indicate that both personal and situational interests are associated with a host of positive child behavior consequences (Dunst, Jones, et al., 2011; Dunst, Trivette, et al., 2012b; Dunst, Trivette, & Hamby, 2012c; Raab & Dunst, 2007; Raab, Dunst, & Hamby, 2013). Personal interests included child preferences, choices, and other individual characteristics that were indicators of things children liked, enjoyed doing, and positive affective responses (e.g., smiling, laughter, general excitement). Situational interests included the novel and salient features of the social and nonsocial environment that evoked sustained attention and engagement. Comparative analyses of the two types of interests indicate that there are value-added benefits of personal interest-based child learning opportunities beyond those associated with situationally interesting activities (Dunst, Trivette, et al., 2012c; Raab & Dunst, 2007). Both personal and situation interests are two factors influencing participation in everyday activities (Bryce, 2010; Bult, 2012; Bult et al., 2011) and child learning while engaged in the activities (e.g., Dunst et al., 2001; Dunst, Trivette, et al., 2012b; Dunst, Trivette, & Masiello, 2011; Raab, Dunst, & Hamby, 2013).

A basic principle of strengths-based assessment and intervention practices is identifying and using existing and emerging child behavior as the building blocks for promoting child learning and development (Buntinx, 2013; Fenton, Walsh, Wong, & Cumming, 2015). For example, this type of assessment and intervention has been used successfully to promote the response-contingent learning of young children with multiple disabilities and significant developmental delays (e.g., Dunst, Raab, Wilson, & Parkey, 2007; Lancia, Singh, O’Reilly, Oliva, & Groeneweg, 2005; Ware, 2016). As noted by Lancia...
et al. (2001), strengths-based practices are more likely to be effective because these practices do “not require excessive effort” (p. 271) on the part of a child to control environmental consequences compared to deficit-based practices that “require excessively high levels of effort” (p. 271) to produce environmental consequences.

In recently published papers in this particular type of research and practice, a strengths-based approach to early child contingency learning was found to have value-added benefits beyond those associated with a deficit-based approach to early child contingency learning (Raab, Dunst, & Hamby, 2016, 2017). The strengths-based intervention was found to be more efficient in terms of promoting child acquisition of response-contingent behavior compared to a deficit-based approach to intervention. Differences between two types of interventions favoring strengths-based practices were found on 5 out of 6 child learning measures. Findings from this line of research and practice also indicated that child contingency detection and awareness was associated with positive child social-emotional responding as an indication of research and practice also indicated that child contin-
tuations favoring strengths-based practices were found on 5

terms of promoting child acquisition of response-contingent behavior compared to a deficit-based approach to intervention. Differences between two types of interventions favoring strengths-based practices were found on 5 out of 6 child learning measures. Findings from this line of research and practice also indicated that child contingency detection and awareness was associated with positive child social-emotional responding as an indication of a child’s recognition of the relationship between his or her behavior and the consequences of that behavior (Raab, Raab, & Hamby, 2017; Dunst, Raab, et al., 2010; Raab, Dunst, Wilson, & Parkey, 2009).

4.1.3. Informed Clinical Opinion Practices. Studies of informed clinical opinion include evidence for the conditions under which this assessment practice is most likely to be effective. Informed clinical opinions or judgments have been found to be effective for both early identification and eligibility determination (Bagnato, McKeating-Esterle, Fevola, Bortolamasi, & Neisworth, 2008; Bryce, 2010; de Sam Lazaro, 2017; Finello, 2011; Shernoff et al., 2014) when the procedure (a) is guided by a formal set of assessment practices, (b) includes multiple sources of information from multiple informants, and (c) is guided by a consensus decision-making process (Bagnato, Smith-Jones, Matesa, & McKeating-Esterle, 2006; Shernoff et al., 2014). Research syntheses for the teaming and collaboration practice (see Appendix A-6) also includes evidence for the particular collaborative practices that contribute to accurate and reliable clinical decision-making (Nijhuis, Reinders-Messelinke, de Blécourt, et al., 2007; Shernoff et al., 2014).

Findings from a number of studies indicate that the use of available information about a child’s behavior based on observations, existing records, family member input, and other information results in decisions about eligibility for early intervention as ages earlier than those based on traditional, multidisciplinary assessment results (Lobo et al., 2014; Mott & Dunst, 2006; Shernoff et al., 2014). Mott and Dunst (2006), for example, found that informed opinion based on available information at the time of referral would have resulted in more than 75% of children being enrolled in early intervention at younger ages compared to using results from traditional, multidisciplinary assessments. Similar results were reported by Shernoff et al. (2014) using an integrative consensus process for eligibility determination. These investigators found “that clinical judgment that is guided by well-articulated principles for distinguishing normative from problematic [child] behavior...holds promise as a systematic method for clinicians to collectively integrate different sources of data” for informed clinical decision making (p. 107).

An often overlooked characteristic of informed clinical opinion is the knowledge and expertise of the persons involved in using the assessment practice (Bosch et al., 2009; Ericsson & Charness, 1994). This includes the knowledge and skills of practitioners from different disciplines who use the practice (Bosch et al., 2009; Coulthard, 2009; S. Guralnick, Ludwig, & Englander, 2014; Moore, 2008; Strauss et al., 2015) and the contributions of parents and other family members’ for informing assessment decisions (Knopf & Swick, 2008; Larson, 2000; Nash, 1990). Practitioners’ knowledge and skills include, but are not limited to, an understanding of normal and typical child development, atypical development and its effects on child behavior and learning, and the conditions under which early childhood intervention is needed and warranted (Coulthard, 2009; Moore, 2008; Strauss et al., 2015). These types of knowledge and skills are learned both in high quality professional development programs (Bransford et al., 2003; Zaslow & Martinez-Bek, 2006) and as a result of extensive experience that involves self-reflection or supervisor/peer facilitated practitioner reflection on assessment decisions and their consequences (e.g., P. A. Alexander, 2003; Ericsson, Krampe, & Tesch-Romer, 1993).

4.1.4. Engaging Families as Partners Practices. The research foundations for engaging parents and other family members in their child’s assessment include findings from research syntheses where meaningful family participation on assessment and evaluation teams is associated with better team decision-making and outcomes (Finello, 2011; Knopf & Swick, 2008; Nash, 1990; Nijhuis, Reinders-Messeling, de Blécourt, et al., 2007) as well as from studies demonstrating the value-added benefits of family participation on assessment teams (Larson, 2000; Strauss et al., 2015). Findings in these syntheses and studies add to our understanding of the methods and strategies for increasing family participation on assessment and intervention teams (Knopf & Swick, 2008; Nash, 1990; Strauss et al., 2015).

Meaningfully engaging family members on assessment teams has been found to be facilitated by a team
member (e.g., service coordinator) who serves as a family advocate (Dunst & Bruder, 2006; Lambie, 2004; Trute, 2007). Engaging families as partners has also been found to be more effective when family-centered practices are used by the advocate and other team members to engage family members in their children’s assessments and interventions (Dunst, 2002; Knopf & Swick, 2008; Kyzar, Turnbull, Summers, & Gómez, 2012). This is especially the case when a family advocate uses family-centered practices to support and engage parents and other family members in child and family assessment and intervention activities (Granat, Lagander, & Borjesson, 2002; Trute, 2007) (see Appendix A-3 for other sources of evidence for engaging families in their children’s assessments and interventions).

4.2. Environmental Practices

The research foundations for the five environmental practices are listed in Appendix A-2. The majority of evidence is from research syntheses (e.g., Christian et al., 2015; Nicolson, Moir, & Millsteed, 2012; Summerbell et al., 2005; Trivette, Dunst, Hamby, & O’Herin, 2010) where findings from individual studies add to the knowledge base about which practice characteristics under which conditions are associated with intended practice outcomes (e.g., Henderson, Grode, O’Connell, & Schwartz, 2015; Jansson, 2010; Østensjø, Carlberg, & Völlestad, 2005). Most of the evidence is specific to particular checklist practices whereas several research syntheses include evidence for two checklist practices (Brown et al., 2016; Dunst & Hamby, 2015b; Lequia, Machalicek, & Rispoli, 2012).

4.2.1. Assistive Technology Practices. The types of assistive technology used with individuals with disabilities, including infants, toddlers, and preschoolers, continues to rapidly expand; compare for example (Edyburn, 2000) vs. (Edyburn, 2015). Assistive technology for young children with disabilities includes devices such as switch operated toys, supported seating, powered wheelchairs, synthetic speech devices, adapted eating utensils, adapted computer keyboards, and other enabling devices (P. H. Campbell, McGregor, & Nasik, 1994; P. H. Campbell, Milbourne, Dugan, & Wilcox, 2006; Mann & Lane, 1995). Newer types of assistive technology include smart phones, tablet computers, and a host of different apps for facilitating child participation and learning (Billington, 2016; Buckholz, Müller, Olson, & Gani, 2013; Burnett, 2010; Lauricella, Blackwell, & Wartella, 2016; Palaiologou, 2016).

There is a considerable amount of evidence that assistive technology can have a host of positive child outcomes (Alper & Raharinirina, 2006; Branson & Demchak, 2009; P. H. Campbell et al., 2006; Chmiliar, 2017; Dunst & Hamby, 2015b; Light & McNaughton, 2012; Mistrett et al., 2001) as well as have positive family benefits (e.g., Nicolson et al., 2012; Parette & Angelo, 1998). The child benefits include, but are not limited to, increased child participation in everyday social and non-social activities and improved child learning in the activities. The assistive technology-child benefit relationship has been reported in a number of research syntheses of studies of infants, toddlers, and preschoolers with different types of disabilities (Alper & Raharinirina, 2006; Branson & Demchak, 2009; Burnett, 2010; P. H. Campbell et al., 2006; Chantry & Dunford, 2010; Dunst, Trivette, & Hamby, 2012a; Dunst, Trivette, Hamby, & Simkus, 2013; Light & McNaughton, 2012) as well as in research syntheses of studies including individuals with disabilities both younger and older than six years of age (Alper & Raharinirina, 2006; Jeffs & Morrison, 2005; Light & McNaughton, 2012).

Despite the fact that different types of assistive technology have been found to be effective with young children with disabilities, there is evidence of non-use or abandonment of the devices by both parents and practitioners (Lesar, 1998; Østensjø et al., 2005). One factor often cited for nonuse or abandonment is the lack of adequate training in adults’ use of assistive technology devices with young children with disabilities (Judge & Simms, 2009; Stoner, Parette, Watts, Wojcik, & Fogal, 2008). Several reviews of assistive technology studies include reference to the fact that most investigators do not describe or even mention the provision of any type of training or professional development for using assistive technology (Alper & Raharinirina, 2006; Bruder, 1998; Floyd, Canter, Jeffs, & Judge, 2008).

Dunst and Hamby (2015b), in their meta-analysis of assistive technology studies of young children with disabilities, analyzed the relationship between type of training and parent and practitioner use of assistive technology devices as well as the relationship between type of training and child outcomes. Findings from a meta-analysis of adult learning practices were used to code and analyze six evidence-based characteristics of the training afforded the parents and practitioners in the technology studies (Dunst, Trivette, et al., 2010). Results showed that trainer use of a combination of 5 or 6 of the evidence-based adult learning characteristics were associated with the largest effects for the relationship between parent and practitioner use of assistive technology as well as child benefits. The majority of studies in the meta-analysis, however, employed less than half of the adult learning characteristics. This is at least one factor contributing to non-use or abandonment of assistive technology. The finding highlights the fact that there needs to be explicit attention to and use of evidence-
based implementation (training) practices to ensure par-
ent and practitioner use of assistive technology interven-
tions with young children with disabilities or delays (see
Figure 4).

4.2.2. Environmental Adaptation Practices. Adap-
tions involve modifications and changes to different as-
pcts of the physical and social environment to enable
child participation in the everyday activities and child
learning while engaged in the activities (P. H. Camp-
bell, Milbourne, & Wilcox, 2008; Keilty & Galvin,
2006; Mistrett, 2004). This includes, but is not limited
to, adaptations to everyday activities, environmental ar-
rangements, activity flow and organization, materials
available in the activities, and what adults do to promote
and support child participation and learning in the activi-
ties (Ryan, 2012; Scherer & Glueckauf, 2005; Sheldon,
1996). In a study by Østensjø et al. (2005) of 95 young
children with cerebral palsy, the children’s parents made
over 1000 environmental modifications to enable child
participation in everyday activities where the different
modifications had differential effects in terms of child
participation and learning.

The research evidence for the effects of adaptations
on child participation in everyday activities and child
behavioral competence while engaged in the activities
comes primarily from research syntheses of the effects
different types of adaptations on child participation
and learning (Dunst & Hamby, 2015b; Trivette, Dunst,
Hamby, et al., 2010) and findings from studies investigat-
ging the effects of different types of training or coach-
ning for promoting parents’ and practitioners’ use of the
adaptations (Østensjø, Carlberg, & Vøllestad, 2003;
Østensjø et al., 2005). Findings reported in Trivette et
al. (2010) showed that adaptations to the environment,
intervention activities, and intervention materials were
associated with better child outcomes. Results reported
in Dunst and Hamby (2015b) indicated that the use of
evidence-based training procedures was related to parent
and practitioner use of adaptations as well as positive
child and adult outcomes.

4.2.3. Natural Learning Opportunity Practices. The
sources of evidence for the natural learning environ-
ment practices include findings from research syntheses
and studies of the relationships between participation
in everyday activities and child learning (Chiarello et
al., 2016; Dunst et al., 2001; Dunst, Bruder, Trivette,
& Hamby, 2006; Dunst, Trivette, Hamby, & Bruder, 2006;
Dunst, Valentine, Raab, & Hamby, 2013b; Fiese et al.,
2002; Petrenchik & King, 2011; Raab, Dunst, John-
son, & Hamby, 2013; Sallis, McKenzie, Elder, Broyles,
& Nader, 1997; Spagnola & Fiese, 2007) and research
syntheses of the methods and strategies for increasing
child participation in everyday activities (Dunst, Raab,
& Trivette, 2013; Palisano et al., 2012; Trivette et al.,
2013). The research foundations also include the sourc-
es of evidence for the instructional (see Appendix A-4)
and interactional (see Appendix A-5) practices used to
engage and reinforce child engagement and learning in
everyday activities and the methods and strategies
for promoting child participation in and acquisition of
functional behavior and skills in those settings (Murza,
Schwartz, Hahs-Vaughn, & Nye, 2016; Paschall & Mas-
tergeorge, 2016; Rakap & Parlak-Rakap, 2011; Roberts
& Kaiser, 2011; White et al., 2011; Woods, Kashinath,
& Goldstein, 2004).

Findings from a number of studies indicate that dif-
ferent approaches to everyday child learning are associ-
ated with a different number of learning opportunities
(Dunst et al., 2005; Dunst & Raab, 2004) and that con-
trasting approaches to intervention are differentially rel-
ated to child and parent outcomes (Dunst, Bruder, et al.,
2006; Dunst, Trivette, Hamby, et al., 2006). Using every-
day activities as sources of child learning opportunities
results in more child learning opportunities compared to
embedding traditional intervention practices in everyday
activities. In addition, the child and parent benefits of
using everyday activities as sources of child learning op-
portunities are far superior to those associated with im-
plementing traditional intervention practices in everyday
activities.

4.2.4. Physical Activity Practices. The research foun-
dations for the two physical activity practices checklists
(Child Physical Activity Checklist and Environmental
Arrangements Checklist) include evidence about the
types of interventions that have been found effective for
engaging young children in active play, movement, ex-
ercise, and other physical activity (Bower et al., 2008; K.
J. Campbell & Hesketh, 2007; Gordon, Tucker, Burke,
& Carron, 2013; Hesketh & Campbell, 2010; Kreichauf
et al., 2012; C. Morgan, Novak, & Badawi, 2013; Ward,
Vaughn, McWilliams, & Hales, 2010) and both the nat-
urally occurring (e.g., Christian et al., 2015; Jansson,
2010; Sugiyama, Okely, Masters, & Moore, 2012) and
planned (e.g., Tremblay, Boudreau-Larivière, & Cimon-
Lambert, 2012) environmental arrangements that en-
courage children’s physical activity. Jansson (2010) and
Sugiyama et al. (2012), for example, found that different
features of indoor and outdoor spaces were associated
with variations in child participation and engagement in
everyday activities. Findings from research syntheses
of the relationships between child physical activity and
child behavioral outcomes (e.g., Ahn & Fedewa, 2011;
Bower et al., 2008; Hinkley et al., 2014; Ward et al.,
2010) and interventions to increase child engagement in
physical activity and exercise (e.g., Brown et al., 2016;
K. J. Campbell & Hesketh, 2007; Kreichauf et al., 2012) also include the research evidence for the child physical activity practices.

The sources of evidence for the two checklist practices include research evidence for how to arrange environments to encourage child engagement in physical activity (e.g., Bower et al., 2008; Fox, 1990; Østensjø et al., 2003; Schilmoeller & Amundrud, 1987) and establish the effects of and benefits from interventions to promote increased participation in activities (e.g., J. K. Campbell & Hesketh, 2007; Kreichauf et al., 2012; Ward et al., 2010). The research evidence, taken together, indicates that different types of intervention practices have been found effective in terms of promoting child play, movement, exercise, and other physical activity (e.g., Boldemann et al., 2006; Bower et al., 2008; Brown et al., 2016; Gordon et al., 2013) and that participation has a number of other kinds of positive child benefits (e.g., Ahn & Fedewa, 2011; J. K. Campbell & Hesketh, 2007; Christian et al., 2015; Godbey, 2009; Hinkley et al., 2014; C. Morgan et al., 2013).

A number of research syntheses include findings from studies of family-implemented interventions to engage young children in physical activity (Brown et al., 2016; Mitchell et al., 2012). Results indicate that a number of different types of family activities are associated with positive physical exercise and movement. For example, parent and child engagement in mutually enjoyable physical activity was found to be a simple yet effective strategy for promoting child physical movement and exercise (Brown et al., 2016).

4.3. Family-Focused Practices

Appendix A-3 includes the research evidence for the four family-focused intervention practices. The majority of evidence is from research syntheses of the relationships between different types of interrelated family-focused practices and child, parent-child, parent, and family outcomes (e.g., Davis & Gavidia-Payne, 2009; Dempsey & Keen, 2008; Dunst, Trivette, & Hamby, 2007, 2008; S. M. King, Teplicky, King, & Rosenbaum, 2004; Kyzar et al., 2012). The sources of evidence include results primarily from studies that have used measures of the key characteristics of the four checklist practices and outcomes of interest (Cunningham & Rosenbaum, 2013; Dempsey & Keen, 2008, 2017; Dunst & Espe-Sherwindt, 2016; Dunst & Espe-Sherwindt, 2016; Dunst, Trivette, 2006b; Kyzar et al., 2012). Findings from studies of the factor structure of the checklist practices indicate that each set of checklist characteristics measures separate but interrelated types of family-focused practices (Cunningham & Rosenbaum, 2013; Dunst & Espe-Sherwindt, 2016; Dunst, Trivette, & Hamby, 2006b). As a result, most research syntheses include evidence for 2 or 3 performance checklists and a few syntheses include evidence for all four checklist practices (Dunst, Trivette, & Hamby, 2006a; Dunst et al., 2008; Trivette & Dunst, 2007).

4.3.1. Family-Centered Practices. The foundations for family-centered practices include evidence for the relationships between relational and participatory family-centered help giving practices and a number of different child, parent-child, parent, and family outcomes (Dempsey & Keen, 2008, 2017; Dunst, Trivette, & Hamby, 2007). Relational practices include, but are not limited to, methods and strategies for actively engaging family members in obtaining family-identified resources and supports (Espe-Sherwindt, 2008) and for promoting parents’ use of different kinds of early childhood intervention practices for promoting child learning and development (Dunst & Espe-Sherwindt, 2016). The two types of practices both include characteristics that operationally define a particular way of interacting with, treating, and involving parents and other family members in assessment and intervention practices that have capacity-building consequences (Dunst, 2017a; Dunst & Trivette, 2009a).

Findings reported in a number of research syntheses indicate that the use of both relational and participatory practices are associated with more positive parent, parent-child, family, and child outcomes (see for example Dunst & Espe-Sherwindt, 2016). Dunst et al. (2007; 2008) found in their research syntheses of family-centered practices studies that both types of practices are associated with parent satisfaction with practitioner help giving; parents’ self-efficacy beliefs; types and sources of family supports and resources; parent and family well-being; parenting competence, confidence, and enjoyment; parent and child interactions; and child behavior and functioning. Dempsey and Keen (2017), in their recent review of the family-centered practices literature, identified five types of outcomes (parent satisfaction with a child’s development, parent stress and well-being, parenting capabilities, parent empowerment, and child development) that are associated with use of family-centered help giving practices.

Advances in our understanding of the effects of family-centered practices on child, parent, parent-child, and family outcomes indicate that in many cases the influences of these practices are indirect and mediated by other variables (Dempsey & Keen, 2017; Dunst & Espe-Sherwindt, 2016). This was found to be the case in
a number of structural equation and path analysis studies (Dunst, Hamby, et al., 2007; G. King et al., 1999), meta-analyses (Dunst, Trivette, & Hamby, 2006a; Dunst et al., 2008) and meta-analytic structural equation modeling syntheses (Dunst & Trivette, 2009b; Trivette, Dunst, & Hamby, 2010) of family-centered practices where the relationships between family-centered practices and parent well-being, parent-child interactions, and child behavior and development were indirect and mediated by parent personal beliefs and appraisals (Bandura, 1997; Skinner & Greene, 2008). Results from the meta-analyses showed that family-centered practices were directly related to parents’ belief appraisals in terms of their abilities to influence practitioner and program responsiveness to their concerns and requests, and that family-centered practices were indirectly related to parent well-being, parenting confidence and competence, and child-functioning mediated by those belief appraisals. Results from the meta-analytic structural equation modeling research syntheses indicated that the effects of family-centered practices could be traced to variations in the parent-child interactions and child development mediated by both parents’ self-efficacy beliefs and wellbeing. The results from all the research syntheses and studies, taken together, indicate that family-centered practices are both directly and indirectly related to a number of outcomes germane to the goals of early childhood intervention.

4.3.2. Family Decision-Making and Engagement Practices. The evidence for both the informed decision making and family engagement practices include findings from research syntheses of the relationships between different kinds of informal and formal social support practices and child, parent, and family outcomes (Andresen & Telleen, 1992; Dunst, Trivette, & Jodry, 1997; M. J. Guralnick, 2008; Halgunseth, Peterson, Stark, & Moodie, 2009; Knopf & Swick, 2008; Kyzar et al., 2012; Turner & Turner, 2013; Vanegas & Abdelrahim, 2016). The social support practices constituting the focus of investigation include key characteristics of family systems (Dunst, 2017a) and family-centered intervention practices (Dunst, Trivette, & Hamby, 1994; Dunst et al., 1997) and their relationships with parent and family functioning (Andresen & Telleen, 1992; Davis & Gavidia-Payne, 2009; M. J. Guralnick, Hammond, Neville, & Connor, 2008; Kyzar et al., 2012; Turner & Turner, 2013; Wills & Ainette, 2012). These include a focus of interventions on family identified sources and supports (Adler, Salanterä, Leino-Kilpi, & Grädel, 2015; Mello et al., 2004; Vanegas & Abdelrahim, 2016) and active family involvement in providing those sources of support and resources (Dunst & Trivette, 2009a; Halgunseth et al., 2009; Knopf & Swick, 2008).

Findings from structural equation modeling and path analysis studies of the relationship between different types of family-focused practices and outcomes of interest indicate that the availability of social support and other resources are indirectly related to a number of child, parent, and family outcomes mediated by other variables (Armstrong, Birnie-Lefcovitch, & Ungar, 2005; Bailey et al., 2007; Diaz, Stahl, Lovis-McMahon, Kim, & Kwan, 2013; Dunst, Hamby, et al., 2007; M. J. Guralnick et al., 2008; G. King et al., 1999). In each of these studies investigators either reported mediated effects or some simple calculations of those effects indicated that the relationships between family-focused practices and outcomes of interest were indirect rather than direct. The mediated variables include, but were not limited to, parents’ belief appraisals (e.g., self-efficacy, optimism), parenting sense of confidence, and parent well-being depending on the particular outcomes that were the focus of analysis.

Findings reported in a meta-analytic structural equation modeling research synthesis indicated that effects of family-centered and family-systems intervention practices can be traced to variations in parents’ interactional styles and child development mediated by parents’ self-efficacy beliefs (Trivette, Dunst, & Hamby, 2010). The family-systems practices included both informed family decision making and active family member engagement in obtaining both informal and formal sources of support and resources. The pattern of results was consistent with findings in other sources showing that the effects of family-focused practices on outcomes not the direct focus of family decision making and engagement are indirect rather than direct, see especially (Dempsey & Keen, 2017; Dunst & Espe-Sherwindt, 2016).

4.3.3. Family Capacity-Building Practices. The evidence for family capacity-building practices include findings from research syntheses of the relationships between different kinds of family-centered participatory practices and parenting confidence and competence (Dunst et al., 2008; Trivette, Dunst, & Hamby, 2010) and research syntheses of relationship-based interventions specifically focused on supporting and strengthening parent-child interactions (Mahoney & Nam, 2011; Mortensen & Mastergeorge, 2014). The research foundations for family capacity-building practices also include findings from studies of different kinds of practitioner intervention practices used to support and strengthen positive parenting practices (Dunst & Dempsey, 2007; Kumpfer, Magalhães, & Xie, 2012; Swanson, Raab, & Dunst, 2011).

As part of an applied research study using family capacity-building, help-giving practice to promote parents’ use of interest-based everyday activities for child
language learning, the use of capacity-building practices by early childhood practitioners were related to both parents’ fidelity of use of the practices (Dunst, Trivette, & Raab, 2014) and indirectly related to child language learning mediated by parents’ use of the intervention practices with fidelity (Dunst et al., 2016). Results from a number of research syntheses include evidence for similar pathways of influence (Halgunseth, 2009; Mortensen & Mastergeorge, 2014; Tramont et al., 2015; Vu, Husteed, Pinder, & Han, 2015). The results, taken together, indicate that family capacity-building practices that support and reinforce parenting confidence and competence are important for parents’ use of practices strengthening parent-child relationships and promoting child learning and development (Hill & Hill, 2007; Mortensen & Mastergeorge, 2014).

4.4. Instructional Practices

The sources of evidence for the three instructional practices (embedded, naturalistic, and systematic) are listed in Appendix A-4. The three practices share common features and elements as well as have instructional practice specific characteristics. As a result, many of the research syntheses of the different instructional practices studies include evidence for two and even all three practices. This is especially the case for the naturalistic and embedded instructional practices which share quite a few key characteristics (K. D. Allen & Shaw, 2011; Peterson, 2004; Snyder et al., 2015).

The three instructional practices each include explicit efforts to influence and reinforce child acquisition of functional behavior (e.g., Koegel, Koegel, Fredeen, & Gengoux, 2008; Pindiprolu, 2012; Wolery, 1994a). Each practice includes the use of verbal and nonverbal prompting strategies, contingent reinforcement of child behavioral competence, behavior shaping and elaboration strategies, modeling, prompt fading strategies, and other instructional techniques; see for example (Park, Weber, & McLaughlin, 2007; Wolery, 1994b). The practices differ primarily in terms of whether the teaching strategies are used to reinforce child-initiated behavior (naturalistic instruction) or promote child acquisition of adult selected behavior (systematic instruction).

The research foundations for the three instructional practices include the effects of different methods and strategies that parents or practitioners use to reinforce child behavior and facilitate acquisition of new competencies (e.g., Hancock, Ledbetter-Cho, Howell, & Lang, 2016; Kaiser & Trent, 2007; Pindiprolu, 2012; Rakap & Parlak-Rakap, 2011; Roberts & Kaiser, 2011; Schreibman et al., 2015; Snyder et al., 2015; Wolery, 1994b). The research foundations also include evidence for the effects of arranging or manipulating antecedent events as conditions for instructional practices to have optimal benefits (Crawford, Stafford, Phillips, Scott, & Tucker, 2014; Marquis et al., 2000; Odom et al., 2004). Nearly all research synthesis investigators concluded that use of the key characteristics of the instructional practices are associated with discernible child benefits (Kaiser & Trent, 2007; Peterson, 2004; Raab, Dunst, Johnson, et al., 2013; Schreibman et al., 2015). The outcomes that are influenced by the instructional practices include, but are not limited to, child literacy, language, interaction, play, and social competencies.

The evidence for the instructional practices is primarily from research syntheses of studies investigating the effects of responsive teaching, embedded instruction, incidental teaching, milieu teaching, enhanced milieu teaching, and other related teaching methods, or the characteristics of the methods, associated with positive child effects (Wolery, 1994b). The instructional practices, taken together, have been described as naturalistic instructional teaching or behavioral strategies (Peterson, 2004; Snyder et al., 2015).

A number of research synthesis investigators focused specifically on the effectiveness of teaching parents to use the instructional practices with their children (e.g., Kaat-van den Os, Daniell, Jongmans, Volman, & Lauteslager, 2017; Mahoney, Perales, Wiggers, & Herman, 2006; Meadan, Ostrosky, Zaghlawan, & Yu, 2009; Roberts & Kaiser, 2011; Woods, Wilcox, Friedman, & Murch, 2011). Findings indicate that with practitioner support and guidance, parents learn to use the instructional practices with their children in ways having a host of positive child behavioral benefits. The same has been found to be the case for promoting preschool teacher and child care staff use of the different instructional practices (Fukkink & Lont, 2007; Odom et al., 2004).

The types of training afforded parents and practitioners to learn to use the instructional practices (as well as other practices) matters a great deal if the practices are used with fidelity and there is sustained use of the practices (Fukkink & Lont, 2007; Han, 2014). Dunst et al. (2016; 2014), for example, found that practitioner use of an evidence-based adult learning procedure (Raab, Dunst, & Trivette, 2013) was associated with parents’ use of intervention practices to increase child participation in interest-based everyday child language learning activities where responsive teaching was used to reinforce child language learning in the activities. Similar results were reported by Woods et al. (2011) for using family-centered capacity-building practices for strengthening parents use of naturalistic instructional practices. Coaching and collaborative consultation are two implementation practices that have been found effective for promoting practitioner and parents’ use of different instructional practices (e.g., Aikens & Akers, 2011; Dunst
et al., 2014; Kaat-van den Os et al., 2017; Trembath, Mahler, & Hudry, 2016; Woods et al., 2011).

4.5. Interactional Practices

Appendix A-5 includes the research evidence for the interactional practices. Findings from studies in more than two dozen research syntheses indicate that an inter-related set of caregiver behaviors are related to variations in child competence (e.g., de Wolff & van IJzendoorn, 1997; Dunst & Kassow, 2008; Eshel, Daelmans, Cabral de Mello, & Martines, 2006; Landry, Taylor, Gutten tag, & Smith, 2008; Lohaus, Keller, Ball, Elben, & Voelker, 2001; Nievar & Becker, 2008; Paschall & Mastergeorge, 2016; Richter, 2004; Shonkoff & Phillips, 2000). These behaviors include sensitivity to child behavioral cues, contingent social responsiveness to child behavior initiations, caregiver and child reciprocity and joint attention, and mutually enjoyable caregiver-child interactions (Mahoney & Nam, 2011; Nievar & Becker, 2008; Warren & Brady, 2007). The key characteristics of these practices, taken together, have been described as responsive parenting (Landry et al., 2008), responsive care giving (J. M. Kim & Mahoney, 2004), developmental parenting (Dyches, Smith, Korth, Roper, & Mandleco, 2012), and relationship-based care giving practices (Mortensen & Mastergeorge, 2014). Caregiver use of the interactional behavior has been found to be nearly universal (Richter, 2004) although children from different cultural and ethnic backgrounds experience different amounts of the interactional behaviors (Mesman, Van IJzendoorn, & Bakermans-Kranenburg, 2012). The effects of the care giving behaviors on child development, however, are similar regardless of cultural or ethnic backgrounds (Mesman et al., 2012). The effects of the interactional behaviors are also similar for children with or without disabilities or delays (Dunst, Gorman, & Hamby, 2010; Dyches et al., 2012; Raab, Dunst, Johnson, et al., 2013; Warren & Brady, 2007).

The particular behavioral and developmental consequences of the caregiver interactional behavior include, but are not limited to, child social-emotional competence (Dunst, 2007), prelinguistic vocalizations (Dunst, Gorman, et al., 2010) language development (Raab, Dunst, Johnson, et al., 2013), cognitive development (Mahoney & Nam, 2011), and secure child attachment (de Wolff & van IJzendoorn, 1997; Nievar & Becker, 2008). Although the bulk of evidence for the relationships between interactional practices and child outcomes are from studies of parents of young children, practitioner use of the practices are related in the same way to child outcomes (e.g., Bowman, Donovan, & Burns, 2001; Landry et al., 2014; May, 2011).

Similar types of responsive care giving behavior have been found effective for facilitating peer interactions of young children with and without disabilities or delays (Crawford et al., 2014; Odom et al., 2004; K. E. Williams, Berthelsen, Nicholson, & Viviani, 2015). Bowman et al. (2001), for example, found in their review of preschool teachers use of responsive care giving practices that responsive care giving was among a number of teaching strategies that enhanced positive peer interactions.

A number of different methods and strategies have been found effective for promoting caregivers’ use of responsive interactional practices (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003; Han, 2014; Pennington, Goldbart, & Marshall, 2004; Rous, Hallam, Grove, Robinson, & Machara, 2003; White et al., 2011). Methods and strategies that focus specifically on facilitating adults’ awareness of children’s behavioral cues, accurate interpretation of those behavior, and sensitive and contingent social responsiveness to children’s behavior initiations, have been found to be most effective in terms of influencing child behavior; see especially (Bakermans-Kranenburg et al., 2003; Dunst & Kassow, 2008).

These types of implementation practices have been found to be effective in terms of promoting practitioner and parents’ use of development-enhancing interactional practices (e.g., Aikens & Akers, 2011; Han, 2014; Kaderavek, Cabell, & Justice, 2009; Pennington et al., 2004; Prieve & Stevens, 2000; Trembath et al., 2016; Vu et al., 2015; White et al., 2011). The methods and strategies all include the use of capacity-building practices that have competency-enhancing characteristics and consequences (Dunst, 2010; Swanson et al., 2011).

Recent research indicates that an important determinant of development-enhancing caregiver interactional behavior is adults’ attributing intention to child behavior and responding contingently to that behavior (Goldberg, 1977; Reynolds, 2003). This has been termed mindful parenting (Cohen & Semple, 2010) or mindful care giving (Singh, Winton, et al., 2006). Research reviews and meta-analyses of the relationships between mindfulness and child outcomes indicate value-added benefits to this aspect of parent/care giver child interactions (Friedmutter, 2016; McMahon & Bernier, 2017; Zeegers, Colonnesi, Stams, & Meins, 2017). Research reviews also indicate that interventions to promote increased parent and caregiver mindfulness benefit not only children (Townshend, Jordan, Stephenson, & Tsey, 2016), but parents and caregivers as well (K. Alexander, 2018). The child benefits include secure infant attachment, better behavior regulation, improved cognitive functioning, and sustained engagement during child-adult interactions. The adult benefits include increased sensitivity to child behavioral signals, improved well-being and decreased
stress, and an enhanced sense of parenting and caregiver confidence. Research by Singh and his colleagues indicates that interventions to improve the mindful parenting and mindful care giving of children with disabilities has similar types of benefits (e.g., Singh, Lancioni, et al., 2006; Singh, Lancioni, et al., 2010; Singh et al., 2004; Singh, Singh, et al., 2010).

4.6. Teaming and Collaboration Practices

Appendix A-6 includes the research foundations for the teaming and collaboration practices. Most of the research evidence for the Collaboration to Learn and Grow Checklist practices and the Communication for Teaming and Collaboration Checklist practices are from the same research syntheses. The evidence includes findings from research syntheses of factors influencing team functioning and its consequences on team performance and effectiveness (e.g., Abelsohn & Woodman, 1983; Beal, Cohen, Burke, & McLendon, 2003; D’Innocenzo, Mathieu, & Kukenberger, 2016; Gully, 2002; Guzzo & Dickson, 1996; Stewart, 2006). The research evidence also includes findings from research syntheses of studies of team leadership and how different types of leadership influence team collaboration, cohesion, and effectiveness (e.g., Agote, Aramburu, & Lines, 2016; Beal et al., 2003; D’Innocenzo et al., 2016; Hillier, Civetta, & Pridham, 2010; Lumsden, Lumsden, & Wiethoff, 2014; Wang, Waldman, & Zhang, 2014).

The research evidence for family participation on assessment and intervention teams includes findings from studies demonstrating the benefits of meaningful family member involvement on teams (e.g., S. M. King et al., 2004; Mickan & Rodger, 2000; Nash, 1990; Nijhuis, Reinders-Messelink, de Blécourt, et al., 2007; Salisbury & Dunst, 1997) and the value-added benefits of using family-centered practices for promoting and supporting family-practitioner collaboration (e.g., S. M. King et al., 2004; Nijhuis, Reinders-Messelink, de Blécourt, et al., 2007).

4.6.1. Team Communication and Collaboration Practices. Two of the most informative research syntheses specifically focused on identifying the key characteristics of effective teaming and collaboration (Mickan & Rodger, 2000; Nijhuis, Reinders-Messelink, de Blécourt, et al., 2007). Despite the fact that the research syntheses involved analyses of non-overlapping studies, there were remarkable similarities in terms of the particular characteristics of effective teaming. Nijhuis et al. (2007) identified six key characteristics of effective teaming and collaboration, five of which had multiple salient elements. These included, but were not limited to, effective communication, shared problem-solving, collective goal setting, and shared team member responsibilities for intervention planning and implementation. The salient elements identified by Nijhuis et al. (2007) as the key characteristics of effective teams were described by Mickan and Rodger (2000) as the organizational and team processing characteristics contributing to team functioning and effectiveness.

Several key characteristics of effective teaming and collaboration stand out as particularly important as evidenced from the findings reported in research syntheses of teaming studies. The first is the role shared leadership plays in team functioning and how these leaders facilitate shared responsibility among team members (Burke et al., 2006; D’Innocenzo et al., 2016; Lumsden et al., 2014; Nicolaides et al., 2014; Wang et al., 2014). A second key characteristic is the importance of team member knowledge and skills needed to make meaningful contributions to team processing and functioning (Coulthard, 2009; S. Guralnick et al., 2014; Mickan & Rodger, 2000; Moore, 2008). Strauss et al. (2015), for example, found the practitioner knowledge and skills not only contributed to improved shared team functioning, but also contributed to meaningful family member involvement in team processing and team decision making; see also (Finello, 2011).

Shared leadership stands out as particularly important for team cohesion, functioning, and performance (e.g., Agote et al., 2016; Beal et al., 2003; Burke et al., 2006; D’Innocenzo et al., 2016; Gully, 2002; Guzzo & Dickson, 1996; Lumsden et al., 2014; Mickan & Rodger, 2000; Nicolaides et al., 2014; Wang et al., 2014). Findings reported in these research syntheses indicate that shared leadership not only improves team cohesion and functioning but also improves shared responsibility and team effectiveness. Hoch (2014), in her research syntheses of shared leadership, found that teams emphasizing information sharing as a focus of team functioning mediated the relationship between shared leadership and team performance and effectiveness. Team leadership that focused specifically on team member empowerment has been found to have the largest effect on team learning and effectiveness (Burke et al., 2006; Stajkovic, Lee, & Nyberg, 2009).

Both the Collaboration to Learn and Grow Checklist and Communication for Teaming and Collaboration Checklist include practices that focus on either or both interagency and intrateam collaboration as ways of improving team functioning and effectiveness (e.g., N. E. Allen, Foster-Fishman, & Salem, 2002; Finello, 2011; Foster-Fishman, Berkowitz, Lounsbury, Jacobson, & Allen, 2001; Herlihy, 2016; Hillier et al., 2010; Mattessich & Monsey, 1992; Xyrichis & Lowton, 2008). Findings in a number of research syntheses indicate that interagency collaboration has positive benefits for programs, fami-
ies, and children (Foster-Fishman et al., 2001; Herlihy, 2016; Hillier et al., 2010; Mattessich & Monseny, 1992). Both Foster-Fishman et al. (2001) and Herlihy (2016) found that effective interagency collaboration included shared values and goals; effective communication among interagency team members; and agency support for interagency collaboration (see also N. E. Allen et al., 2002). Similar types of characteristics have been identified as important for effective intrateam collaboration and functioning (Finello, 2011; Gully, 2002; Xyrichis & Lowton, 2008).

Team member training and team building have been the focus of a number of research syntheses and include evidence on types of training that can positively affect team building, cohesion, and communication (Burke-Smalley & Hutchins, 2007; Klein et al., 2009; Mattessich & Monseny, 1992; Salas et al., 2008; Weaver, Rosen, Salas, Baum, & King, 2010). Salas et al. (2008), for example, found that different types of training improved team member performance when training focused on team member communication and shared decision-making. Klein et al. (2009) found that team building that focused on improving interpersonal relationships, role clarification, shared goal setting, and shared problem solving were related to better team performance.

The use of adult learning methods and strategies for improving team functioning and performance has been found to be an important characteristic of the Collaboration to Learn and Grow Checklist practices. Results reported in the number of research syntheses indicate that team training that uses adult learning methods and strategies has value added benefits in terms of improving team performance and effectiveness (Burke-Smalley & Hutchins, 2007; Cavalier, Klein, & Cavalier, 1995; Weaver et al., 2010).

Many of the characteristics of the two teaming and collaboration practices checklists have been found to be associated with positive learner outcomes in research syntheses of adult learning studies (Dunst & Hamby, 2015a; Dunst, Trivette, et al., 2010). These include, but are not limited to, authentic team building experiences, multiple opportunities to engage in discussions and problem solving, peer coaching and mentoring, reflection on team processing, and shared decision making. The effects of the adult learning methods and strategies on learner outcomes have been found to be optimal when training is provided to a small number of adult learners (Dunst & Trivette, 2012). Klein et al. (2009), in a research synthesis of team building studies, also found that team building and training were more effective when done with a small number of team members.

4.6.2. Family Involvement Practices. Meaningful family member involvement on teams is a particularly important characteristic of effective teaming and collaboration (Larsson, 2000; Nijhuis, Reinders-Messelink, de Blécourt, et al., 2007; Rous et al., 2003; Stewart, 2006). Nijhuis et al. (2007), as part of their research synthesis of teaming and collaboration, identified different dimensions of parent and family involvement as essential for optimal team functioning. These included, but were not limited to, family concerns and priorities as a focus of team functioning, explicit and intentional efforts to engage family members in team processing, use of family-centered practices to facilitate family involvement, and practitioner responsiveness to each family’s unique circumstances. All of this has been found to be accomplished by a team member serving as a family advocate who represents the best interest of the family and individual family members participating in team decision making (Larsson, 2000; Nash, 1990).

A number of research syntheses include evidence indicating that practitioners who engage family members on teams in a family-centered manner results in more active family member participation in both assessment and intervention practices (e.g., Dunst, 2002; S. M. King et al., 2004; Nash, 1990; Salisbury & Dunst, 1997). The characteristics of family-centered practices that support family member involvement include, but are not limited to, sensitivity and responsiveness to family concerns and priorities, complete and unbiased information sharing so family members can make informed decisions, active family member participation in teaming activities, and explicit and authentic practitioner efforts to treat family members as equal partners in all aspects of teaming practices (Dunst & Espe-Sherwindt, 2016; Epley, Summers, & Turnbull, 2010).

In a recent review of the family-centered practices literature, Rodger and Keen (2017) noted that shared decision-making between families and practitioners improved both the provision of child and family services and the outcomes of those services; see also (Foster et al., 2015). Family member participation in shared decision-making on assessment and intervention teams includes, but is not limited to, information sharing so families can make informed decisions about desired interventions (Finello, 2011; Herlihy, 2016; Nijhuis, Reinders-Messelink, de Blécourt, et al., 2007; Strauss et al., 2015).

4.7. Transition Practices

Research evidence for smooth and effective transitions from hospital to home/early intervention, early intervention to preschool/preschool special education, and preschool to kindergarten/elementary school are listed in Appendix A-7. The same or similar types of practices for different types of child and family transitions have been found to be important for ensuring smooth and effective
transitions although most research has focused on particular transition periods (e.g., hospital to home).

Converging evidence from research syntheses of transition studies point to a number of conditions that contribute to successful transitions. These conditions include transition planning between both transitioning and receiving program practitioners, parent and family involvement in transition planning and implementation, explicit attention to the types of transition experiences promoting continuity in children’s learning and development, and use of family-centered practices to reduce parent stress and promote positive child and family adaptations and adjustment prior to, during, and following a transition (e.g., Affleck, Tennen, & Rowe, 1991; Desai, Popalsky, Simon, & Mangone-Smith, 2015; Hoover, 2001; Malone & Gallagher, 2009; O’Brien, 1991; Podvey & Hinojosa, 2009; Rosenkoetter et al., 2009; Rous & Hallam, 2012; Vogler, Crivello, & Martin, 2008; Yeboah, 2002).

There is evidence that transitions are best understood and facilitated in the context of an ecological framework (Rimm-Kaufman & Pianta, 2000; Rosenkoetter et al., 2009; Rous, Myers, & Stricklin, 2007) that explicitly considers the interrelationships between individuals and programs/agencies involved in transitions and how those relationships promote or impede successful transitions (Hoover, 2001; Rosenkoetter et al., 2009; Yeboah, 2002).

As noted by Odom and Wolery (2003), attention to these relationships and ecological influences are “enhanced by a developmentally instigative adult” (p. 166) who “promotes the continuity of experiences across settings [to] ideally create a seamless service system” transition (p. 169). The complexity of these relationships was reported by both Affleck et al. (1991; 1989) and Williams and Williams (1997) in studies of variables associated with effective and ineffective transition practices. Affleck et al. (1989), for example, found in a hospital to home transition study that support provided by home visitors in response to mothers indicating a need for assistance had negative effects on these same outcomes; see also (Coates, Renzaglia, & Embree, 1983; Dunst & Trivette, 1988; von Bergen, Soper, Rosenthal, Cox, & Fullerton, 1999).

A number of research syntheses and studies include evidence for the use of family-centered transition practices to increase the likelihood that transitions are smooth and effective (Desai et al., 2015; Dunst & Bruder, 2006; Podvey & Hinojosa, 2009). Family-centered practices have been found to be related not only to smoother transitions between transitioning and receiving programs but are also related to more positive child and family outcomes and especially less stress and better adaptations and adjustments before, during, and following transitions.

Findings in a number of research syntheses of outreach practices to facilitate referrals to receiving programs indicate that more frequent outreach that is brief and highly focused improves referrals from transitioning programs and practitioners (Clow, Dunst, Trivette, & Hamby, 2005; Dunst & Gorman, 2006). The particular outreach practices that have been found to be most effective were used by Dunst et al. (2006) to increase referrals from neonatal intensive care units to early intervention. Results showed that brief, repeated contacts with hospital staff were more effective in terms of increased referrals compared to less frequent contacts.

Interagency agreements have been found to be at least one way to facilitate smooth transitions between programs and agencies (Hadden, 1998; Skouteris, Watson, & Lum, 2012; Wischnowski, Fowler, & McCollum, 2000). Herlihy (2016), in a review of the characteristics of effective interagency collaboration, identified open and effective communication, positive interpersonal relationships, and shared goals as important for collaboration to have positive consequences. Results reported in a study by Hadden (1998) found that these characteristics as well as several others (e.g., review and monitoring of interagency agreements) were related to successful transitions from early intervention to preschool programs.

5. Discussion

Early childhood intervention has a relatively short but rich history (Dunst, 1996; McLean, Sandall, & Smith, 2016). Contemporary interest in early childhood intervention can be traced to the 1960s and 1970s (Dunst & Espe-Sherwindt, 2017). In the 50+ years since early childhood intervention was recognized as a factor that could be used to alter the course of development of young children with disabilities or delays, considerable advances have been made in terms of our understanding of the kinds of experiences having optimal developmental benefits and the research evidence for those practice-outcome relationships (Dunst & Espe-Sherwindt, 2017; Farrell, Kagan, & Tisdall, 2016; Reichow, Boyd, Barton, & Odom, 2016; Sukkar et al., 2017).

This paper included a description of 26 early childhood intervention performance checklists and the research evidence for the checklist practices. Findings reported in more than 200 research syntheses informed the selection or development of the checklist practice indicators based on the empirical relationships between the checklist indicators and the intended outcomes and benefits of the practices. The meta-review constitutes one of the most comprehensive analyses of the early childhood intervention research literature focusing on the perfor-
The performance checklists were initially developed using the Division for Early Childhood (2014) early intervention/early childhood special education recommended practices as the sources of practice indicators (Dunst, 2017b). It was determined, however, that the DEC recommended practices differed considerably in their formatting, coverage, specificity, and internal coherence, and that the ways in which many of the practices are written, essentially made attempts to infer intent futile. This, to a large degree, was the basis for developing the performance checklists.

There was one other factor influencing the development of the performance checklists and compilation of the evidence for the checklist practices. As part of the development of the DEC recommended practices, a Recommended Practices Commission (2015) submitted sources of information as evidence for the practices despite the fact that “Given the accelerated timelines for producing a revised set of recommended practices…, the commission determined it would not be feasible to conduct comprehensive literature reviews to gather information about the status of best-available evidence” (Snyder & Ayankoya, 2015, p. 21). A review of the source of evidence provided by the commission for the recommended practices found that in many cases the sources did not include the kind of information to claim the practices were evidence-based. A review of that information by the author found most of the literature did not include practice-outcome data, many of the studies cited as evidence for the recommended practices actually included evidence for other types of intervention practices, and literature was often cited with no rhyme or reason for why it was included as sources of evidence for the recommended practices.

Claims that any intervention practice is evidence-based or evidence-informed necessitates that there is research cited for practice-outcome relationships. Comparatively speaking, the evidence base for the performance checklists is substantial in scope and content, whereas the evidence for the DEC recommended practices at the time the practices were released, at least as compiled for some practice areas, is weak at best.

The type of analysis described in this paper is best described as a meta-review of practice-outcome evidence for a collection of early childhood intervention practices. Haneef (2013) described this type of synthesis as “empirical research consolidation” (p. 383) where the focus of analyses are studies of the functional or statistical relationships between different independent or intervention variables and different dependent or outcome variables in order to aggregate evidence from diverse sources, to draw conclusions, and make interpretive statements about the strength of the empirical evidence. For each and every performance checklist, multiple research syntheses included different sets of research evidence where practice-outcome relationships were the same or very similar, providing converging evidence indicating that the checklist indicators have substantial evidence bases.

5.1. Strengths and Limitations

The meta-review has both strengths and limitations. One strength is the fact that different bodies of evidence for different early childhood intervention practices have for the first time been compiled in one place. This should prove useful for practitioners to be able to cite relevant findings for different practices, and especially in the current era of calls for the use of only evidence-based interventions (e.g., Reichow, 2016). A second strength is the breadth of evidence that was compiled for each performance checklist practice. Even a cursory search for additional evidence for the practices unearths more recently published research syntheses and studies for the checklist practice indicators. Yet another strength is the categorization of the research evidence for individual checklist practices (Appendices A-1 to A-7). This permits easy identification of which sources of evidence are the foundations for which practices.

The meta-review also has a number of limitations. One limitation is the fact that the meta-review did not permit in-depth analysis of the studies in each research synthesis given the number of syntheses and the number of performance checklists. If the necessary fiscal and human resources were available, either a systematic review (Davies, 2000) or meta-analysis (Cooper, Hedges, & Valentine, 2009) of the individual studies in the research syntheses might have yielded more specific information about practice-outcome relationships. A second limitation is the fact that research syntheses for individual checklist practices varied in terms of the depth of analysis in the synthesis reports. This was addressed in the meta-review by highlighting particular syntheses that included the best evidence for the checklist practices. A third limitation is the fact that certain practice areas, and checklist practices in the different areas, had substantial amounts of evidence (e.g., interactional practices) while other areas had considerably less evidence (e.g., transitions). This was most likely the case simply because certain practices are more likely to be viewed as worthy of research attention.

Both the strengths and limitations of the meta-review place the research evidence for the performance checklists in empirical and practical context. The strengths highlight the breadth of the research foundations for the performance checklists. The limitations highlight gaps in the knowledge base for the practices.
6. Conclusion

Early childhood intervention that is evidence-informed is more likely to have positive child, parent, and family outcomes and benefits. Performance checklists (or other intervention tools) informed by research evidence hold special promise for improving early childhood intervention practices. The checklists that were the focus of this paper were found to have a substantial evidence base as shown in the review of research findings informing the development of the performance checklists.

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A n important feature of the approach to knowledge management and sharing described in the monograph was end-user evaluation of the performance checklists and practice guides. The end-users of the evaluations of both products were early childhood intervention practitioners and parents of young children with disabilities or developmental delays.

This section of the monograph includes four chapters, all of which focus on practitioner and parent judgments of the social validity of early childhood intervention products and practices. Social validity was judged in terms of the importance and acceptability of particular types of intervention practices (Foster & Mash, 1999; Turan & Meadan, 2011). This was the focus because social validity appraisals are related to the likelihood of end-users adopting and using intervention practices in general (e.g., Reimers & Wacker, 1988; Wehby, Maggin, Moore Partin, & Robertson, 2011) and early childhood intervention practices in particular (e.g., Dunst, Raab, & Hamby, 2016; Strain, Barton, & Dunlap, 2012).

Chapter 4 includes results from analyses of background, setting, and personal factors which predicted practitioners’ judgments of the social validity appraisals of a performance checklist and practice. The results showed that only practitioner cognitive judgments of the products was associated with their social validity appraisals. Chapters 5 and 6 include results from practitioner field tests of different performance checklists and practices, where results from the field tests informed improvements in both products. Chapter 7 includes results from three field tests of family member judgments of different parent practice guides, where the relationships among practice guide design features, social validity judgments of the practice guide interventions, and practice guide outcomes were consistent with expectations. The results from all four field tests add to the knowledge base not only in terms of understanding of the factors affecting social validity appraisals, but also in terms of explicit attention to end-user comments, feedback, and suggestions used to bolster judgments of the acceptability and importance of early childhood intervention performance checklists and practice guides (e.g., Dunst, Pace, & Hamby, 2007; Dunst, Trivette, Gorman, & Hamby, 2010).

References


4. Predictors of the Social Validity Judgments of Early Childhood Intervention Performance Checklists and Practice Guides

Carl J. Dunst and Deborah W. Hamby

Abstract

Early childhood intervention practitioners (N = 42) reviewed three early intervention performance checklists and three intervention practice guides and made social validity judgments of the acceptability and importance of the products. Both the checklists and practice guides included evidence-based characteristics and indicators that are known to be related to improved child learning and development. Hierarchical regression analyses of the relationship between five predictor variables and the study participants’ social validity judgments and found that only practitioners’ cognitive appraisals of the checklists and practice guides accounted for significant amounts of variance in their social validity judgments beyond that accounted for by the other predictors (education, years of experience, primary role, and type of program). The importance of cognitive appraisals for understanding their influence on practitioner social validity judgments are described.

Keywords: Early childhood intervention, social validity judgments, performance checklists, practice guides, practitioner cognitive appraisals

1. Introduction

Early childhood intervention practices for young children with developmental disabilities or delays include different kinds of activities, experiences, and events designed to enhance child learning and development (Dunst, 2007). The extent to which intervention practices are used with fidelity is dependent, in part, on practitioners’ or parents’ judgments of the acceptability and importance of the practices and the expected outcomes of the practices (Dunst, Trivette, & Raab, 2013). These types of value statements have been described as social validity judgments (Foster & Mash, 1999; Schwartz & Baer, 1991). According to Strain et al. (2012), evidence “suggests that there is a positive correlation between [end-users] ‘liking’ an intervention (i.e., finding it acceptable and doable) and implementing the intervention with fidelity” (p. 197).

Findings from studies of the relationships between social validity judgments and the fidelity of use of different kinds of intervention practices (Pittenger, Barahona, Cavalari, Parent, & K., 2014; Vancel, Missall, & Bruhn, 2016; Wehby, Maggin, Moore Partin, & Robertson, 2011), including studies of early childhood intervention practices (e.g., Dunst, Raab, & Hamby, 2016; Strain et al., 2012), show that positive judgments of the acceptability and importance of the practices account for significant amounts of variance in adherence to the use of the key characteristics of different kinds of intervention practices. Little is known, however, about the personal and situational characteristics that influence practitioners’ judgments of the social validity judgments of different kinds of intervention practices. Vancel et al. (2016), in one of the few studies investigating factors associated with variations in the social validity judgments of school-based practices, found that school level differences (e.g., elementary vs. high school) but not teacher personal characteristics (e.g., gender) were associated with differences in teacher social validity ratings.

There is reason to expect that practitioners’ cognitive appraisals of intervention practices might contribute to variations in their social validity judgments of different kinds of practices. Cognitive appraisals are a person’s personal interpretation of life experiences and events.
According to self-efficacy and cognitive appraisal theories, these beliefs can be either positive or negative and differentially affect personal interpretations of the same or similar life events and experiences (e.g., Bandura, 1993; Tong, 2013). Findings from a number of studies indicate that positive and negative cognitive appraisals in fact result in different interpretations of the same life events and experiences (e.g., Nyer, 1997; Paškvan, Kubicek, Prem, & Korunka, 2016; Silvia, 2005).

1.1. Purpose of the Field-Test Study

The purpose of the analyses described in this brief report was to determine if early childhood practitioner personal characteristics (e.g., years of experience, educational degree), practitioner primary intervention role, type of early childhood program (U.S. Department of Education Early Childhood Intervention vs. U.S. Health and Human Services Early Head Start), or early childhood practitioner cognitive appraisals, were associated with variations in practitioners’ judgments of early childhood intervention performance checklists and practice guides. The data were collected as part of field-tests of the importance and acceptability of different early childhood intervention performance checklists and three different early childhood intervention practice guides (Dunst, 2017a, 2017b; Dunst, Hamby, Wilson, Espe-Sherwindt, & Nelson, 2017).

The performance checklists were developed using a conceptualization-operationalization-measurement framework (Dunst, Trivette, & Raab, 2015) to delineate subsets of evidence-based intervention practices for several of the Division for Early Childhood (2014) recommended practices. The checklists include internally consistent sets of practice indicators that, taken together, are the key characteristics of a particular intervention practice (e.g., practices for strengthening adult-child interactions). The checklist indicators in turn were used to develop practice guides that included specific activities for using the checklist indicators to influence child outcomes. The two different products (checklists and practice guides) are intended to be used by early childhood intervention practitioners with the children with whom they work or with parents to promote their use of the practices with their children.

2. Method

2.1. Participants

The participants were 42 practitioners in early childhood intervention programs in three different United States. The practitioners’ degrees, disciplines, years of experience, and program type are shown in Table 4-1. Most participants had bachelors or masters degrees (76%) in education or special education (81%). The participants’ years of experience varied considerably with the majority (74%) having six or more years of experience. The early childhood practitioners were employed in either U.S. Department of Education Individuals with Disabilities Education Act (IDEA) early childhood programs ("Individuals with Disabilities Education Improvement Act of 2004, Pub. L. No. 108-446, 118 Stat. 2647," 2004) or U.S. Department of Health and Human Services Early Head Start Programs ("Improving Head Start for School Readiness Act of 2007, P.L. 110-134," 2007).

2.2. Field Test Survey

Each participant reviewed a performance checklist and companion practice guide and then completed a survey that included social validity judgments of the (a) checklists, (b) the practice guides, and (c) the relationship (compatibility) between the checklists and practice guides. The three sections each included four social validity items that were developed using Foster and Mash’s (1999) framework for assessing the importance and ac-

<table>
<thead>
<tr>
<th>Table 4-1</th>
<th>Background Characteristics of the Early Childhood Intervention Field-Test Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Degree</td>
<td>Number</td>
</tr>
<tr>
<td>Associates Degree</td>
<td>8</td>
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<tr>
<td>Bachelors Degree</td>
<td>15</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>17</td>
</tr>
<tr>
<td>Doctorate Degree</td>
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</tr>
<tr>
<td>Professional Discipline</td>
<td></td>
</tr>
<tr>
<td>Early Childhood Education</td>
<td>24</td>
</tr>
<tr>
<td>Early Childhood Special Education/Special</td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
</tr>
<tr>
<td>Years of Experience</td>
<td></td>
</tr>
<tr>
<td>&lt; 1</td>
<td>1</td>
</tr>
<tr>
<td>2-5</td>
<td>10</td>
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<tr>
<td>6-10</td>
<td>12</td>
</tr>
<tr>
<td>11-15</td>
<td>7</td>
</tr>
<tr>
<td>16-20</td>
<td>7</td>
</tr>
<tr>
<td>21+</td>
<td>5</td>
</tr>
<tr>
<td>Type of Program</td>
<td></td>
</tr>
<tr>
<td>Early Childhood Intervention Programs</td>
<td>24</td>
</tr>
<tr>
<td>Early Head Start Program</td>
<td>18</td>
</tr>
</tbody>
</table>

* Speech and language pathologists, child and family specialists, and early interventionists.
ceptability of intervention practices and the outcomes of the practices. Each item was rated on a 5-point scale ranging from do-not-agree-at all to agree-a-great-deal with the social validity statements (e.g., “The checklist items are easy to understand and follow,” “The practice guide would be worth my time and effort to use”). Factor analysis of each set of ratings produced single factor solutions with coefficient alphas of 0.90, 0.85, and 0.92 for the checklist, practice guide, and compatibility items respectively.

The survey also included questions about the background characteristics of the participants shown in Table 4-1, a 5-point scale for ascertaining each practitioner’s primary role providing early intervention to young children, and a series of open-ended questions asking participants for suggestions to improve the checklists and practice guides. The responses for identifying the practitioners’ primary role choices were: (1) work directly with children on a one-to-one basis, (2) work directly with children in groups, (3) explain my interventions to the parents of the children, (4) illustrate my interventions to the children’s parents, and (5) build parent capacity to implement my interventions with their children. The scale is modeled after one used by Dunst et al. (2014) to represent contrasting types of intervention practices (child-focused vs. parent-focused).

The open-ended questions specifically asked for suggestions to improve or change the checklists and practice guides. There were four open-ended questions for the checklists and three open-ended questions for the practice guides. The suggestions for improving the checklists or practice guides included statements such as “The checklist items need to be restated in simpler words,” and “The practice guide needs more examples of intervention activities”). Many participants also made positive comments about the checklists (e.g., “The checklist items were concise, understandable, and to the point”) and practice guides (e.g., “The format of the practice guide was well designed and easy to follow”). The practitioners’ suggestions for improving the checklists and practice guides and their positive comments about the products were used to compute personal interpretation indices, which were used as proxy measures for positive or negative cognitive appraisals of the checklists and practice guides. The measure was computed as a balance score for the number of positive comments minus the number of suggestion comments for each practitioner.

2.3. Predictor Variables

Table 4-2 shows the means, standard deviations, ranges for five predictor variables, and the variable codes used in data analysis. All of the predictor variables except type of early childhood program were coded at an ordinal or interval scale level, whereas program type was coded as a nominal scale for ascertaining type of program differences on practitioner social validity judgments.

2.4. Method of Analysis

Hierarchical multiple regression analysis (Cohen, Cohen, West, & Aiken, 2003) was used to evaluate the relationships between the predictor variables and the practitioners’ social validity judgments. The variables were entered into the analyses in the following order: Practitioner education level, practitioner years of experience, practitioner primary role, program type, and practitioner cognitive appraisals. Three regressions were performed: One for the checklist social validity judgments with the number of practitioner checklist cognitive appraisals as the predictor variable, one for the practice guide social validity judgments with the number of practitioner practice guide cognitive appraisals as the predictor variable, and one for the total cognitive appraisals. The balance scores were computed as the number of positive comments minus the number of suggestions for each practitioner.

Table 4-2
Predictor Variables for the Social Validity Analyses

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Variable codes</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practitioner Education Degree</td>
<td>AA = 1 to PhD/EdD = 4</td>
<td>2.30</td>
<td>0.85</td>
<td>1 to 4</td>
</tr>
<tr>
<td>Years of Practitioner Experience</td>
<td>&lt; 1 = 1 to &gt; 21 = 6</td>
<td>3.58</td>
<td>1.43</td>
<td>1 to 6</td>
</tr>
<tr>
<td>Practitioner Primary Rolea</td>
<td>Child = 1 to Parent = 5</td>
<td>3.97</td>
<td>1.35</td>
<td>1 to 6</td>
</tr>
<tr>
<td>Type of Early Childhood Programb</td>
<td>EHS = O and IDEA = 1</td>
<td>0.14</td>
<td>0.98</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Checklist Cognitive Appraisalsc</td>
<td>-3 to 3</td>
<td>0.31</td>
<td>1.49</td>
<td>-3 to 3</td>
</tr>
<tr>
<td>Practice Guide Cognitive Appraisalsc</td>
<td>-4 to 4</td>
<td>0.00</td>
<td>1.79</td>
<td>-4 to 4</td>
</tr>
<tr>
<td>Total Number of Cognitive Appraisalsc</td>
<td>-7 to 7</td>
<td>0.31</td>
<td>3.09</td>
<td>-7 to 7</td>
</tr>
</tbody>
</table>

aScored on a continuum from primarily child-focused to primarily family-focused interventions. bEHS = Early Head Start Program and IDEA = Individuals with Disabilities Education Act Early Childhood Programs. cThe balance scores were computed as the number of positive comments minus the number of suggestions for each practitioner.
and one for the checklist-practice guide relationship social validity judgments with the total number of practitioner checklist and practice guide cognitive appraisals as the predictor variable.

3. Results

3.1. Correlations

The correlations between the predictor variables and social validity judgments are shown in Table 4-3. The different social validity measures were correlated with one another, and each was correlated with practitioner cognitive appraisals. Practitioner degree, years of experience, and professional role were all correlated with type of early childhood intervention program. Practitioners employed in IDEA intervention programs had more formal years of education and were more likely to involve parents in their children’s early intervention. In contrast, practitioners employed in Early Head Start Programs had fewer years of early childhood intervention experience.

To be assured multicollinearity among the predictor variables would likely not affect the regression analysis results we first ran diagnostic tests to determine if the VIFs (Variance Inflation Factors) were below a recommended threshold of three. This was done by treating each predictor variable as a dependent measure and the other four variables as predictors. Five analyses were run with each predictor variable as a dependent measure. The median VIF was 1.19 (Range = 1.04 to 1.84) indicating that multicollinearity was minimally present among the predictor variables.

3.2. Regression Analyses

The results for the three regression analyses are shown in Table 4-4. In each analysis, $R^2$ was significant only at the last step in the regression analyses. Between 36% and 41% of the total variance in the practitioners’ social validity judgments was explained by the five predictor variables.

Practitioner cognitive appraisals of the checklists and practice guides were the only predictor variables significantly related to variations in the social validity judgments in each of the three analyses. Between 22% and 34% of the variance in social validity ratings were accounted for by the practitioners’ cognitive appraisals after the effects of the other predictor variables were partialled from the analyses. In all three analyses, the more positive the practitioners’ cognitive appraisals, the more socially valid they rated the checklists and practice guides as evidenced by the direction of the signs of the standardized regression coefficients for cognitive appraisals.

4. Discussion

The analyses reported in this paper showed that cognitive appraisals of the early childhood intervention performance checklists and practice guides that were targets of evaluation were the only predictor variables that accounted for significant amounts of variance in practitioners’ social validity judgments. In contrast, none of the practitioner background characteristics or type of early childhood program proved important in terms of accounting for significant amounts of variance in the practitioners’ social validity judgments.

Cognitive appraisals play central roles in a number of theories where personal evaluations are viewed as determinants of how individuals interpret life experiences and events (e.g., Bandura, 1986; Berlyne, 1960; Scherer, 1999). Different individuals often interpret the same life experiences and events differently, where cognitive appraisals represent a person’s unique evaluation of those experiences.
events and experiences. Bandura (1997), for example, argued that past experiences that result in outcomes confirming or disconfirming expectations shape and influence subsequent beliefs about and evaluations of new experiences or events.

The analyses described in this paper were undertaken largely due to the fact that the study participants viewed the early childhood intervention performance checklists and practice guides differently, as evidenced by the diverse nature of their comments, feedback, and evaluation of the products. These appraisals proved highly predictive of the practitioners’ judgments of the importance and acceptability of the checklists and practice guides. Including cognitive appraisal measures in studies of both the social validity and fidelity of use of intervention practices could help identify why practitioners do and do not see the value of different kinds of early intervention practices (see e.g., Dunst et al., 2016). Cognitive appraisal measures might also prove important as mediators or moderators of the relationship between social validity judgments, fidelity of use of intervention practices, and outcomes of interest (e.g., Dunst, Pace, & Hamby, 2007; Swanson, Roper, Raab, & Dunst, 2006).

There are a number of limitations to the methodology used in the study that need to be highlighted to place the findings in context. First, the use of respondent comments to open-ended questions as a proxy measure was not a direct assessment of cognitive appraisals which may have influenced the study results. Second, the small sample size and the fact that the participants were from only three early childhood intervention programs limits generalizability of the results. Third, other predictor variables not included in the study might prove to be important determinants of social validity judgments. Despite these limitations, the strength of the study is highlighted by the fact that social validity judgments are not made in a vacuum but rather are influenced by personal evaluations shaped by the previous experiences, beliefs, and values of early childhood intervention practitioners as our results indicate.

References


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School Mental Health, 4(1), 22-33. doi:10.1007/s12310-011-9067-4
5. Early Childhood Practitioner Judgments of the Social Validity of Performance Checklists and Parent Practice Guides

Carl J. Dunst

Abstract

Findings from three field tests of early childhood intervention practitioner performance checklists and three parent practice guides are reported. Forty-two practitioners from three early childhood intervention programs reviewed the checklists and practice guides and made (1) social validity judgments of both products, (2) judgments of the compatibility of the checklists and practice guides, and (3) suggestions for improving the intervention products and materials. Results showed that practitioner feedback and suggestions yielded valuable information for improving the products where changes made in response to the practitioners’ social validity ratings and suggestions from the first field test had discernible effects on judgments and feedback of revised products. The importance of striving to develop intervention products and materials that are judged as socially important and acceptable is described.

Keywords: social validity, performance checklists, practice guides, practitioner appraisals, product improvement

1. Introduction

The extent to which intervention practices in general, and early childhood intervention practices in particular, are judged positively by practitioners and the parents with whom they work is dependent, in part, on the perceived importance and value of the practices (Kazdin, 1999). The social importance and acceptability of intervention practices in turn would be expected to be related to practitioner use of the practices with fidelity (Foster & Mash, 1999). The importance and acceptability of intervention practices are described as social validity (Turan & Meadan, 2011). Social importance is most often assessed in terms of consumer or end-user judgments of the utility of both intervention practices and the intended outcomes of the practices (e.g., Using this practice would be worth my time and effort), whereas social acceptance is most often assessed in terms of judgments of how well an intervention practice can improve everyday life (e.g., This practice can easily be used to improve my child’s behavior). As noted by Strain et al. (2012), no practice, no matter its evidence base, is likely to be used by practitioners or parents if the practice itself is not viewed as socially valid and worth the time and effort to adopt and use.

1.1 Purpose

The purpose of the field tests described in this paper was to obtain early intervention practitioner social validity judgments of performance checklists and parent practice guides developed at the Early Childhood Technical Assistance (ECTA) Center (ectacenter.org/decrp). The performance checklists were developed using a conceptualization-operationalization-measurement framework (Dunst, Trivette, & Raab, 2015) for operationalizing recently revised and updated recommended practices in early intervention/early childhood special education (Division for Early Childhood, 2014). The checklist indicators in turn were used to develop practice guides to ensure that intervention activities included key checklist practice characteristics.

1.2. Early Childhood Recommended Intervention Practices

There are eight DEC recommended practices topic areas (assessment, environment, family, instruction, interaction, leadership, teaming and collaboration, transitions) where each topic area includes between 2 and 13 practices that differ considerably in their formatting,
specificity, and internal coherence. Content analyses of the recommended practices for each topic area were used to identify internally consistent sets of practice characteristics for each topic area, where the characteristics were used to develop operationalized sets of intervention practice indicators. For example, the five DEC interaction practices were used to develop four checklists (adult-child interactions, child social-communication interactions, child social-emotional competence, child-child interactions), where each checklist (e.g., adult-child interactions) was designed to promote and strengthen child interactional behavior (e.g., using social games to promote turn taking skills).

1.3. Performance Checklists

The performance checklists are all formatted in the same way to facilitate practitioner understanding and use of the operationalized practice indicators. Appendix 5-A shows the performance checklist for promoting family capacity to provide a child everyday learning opportunities for enhancing his or her development. Each checklist includes: (1) a brief description of the purpose of a checklist and how it can be used to plan or evaluate interventions, (2) an internally consistent set of operationalized practice characteristics, (3) a rating scale for assessing how much or how well the practice characteristics were able to be used by a practitioner, and (4) space for recording notes. The instructions on each checklist state the purpose of the intervention and expected outcome or benefit, how a practitioner can use the checklist to affect changes in parent or child behavior, and how practitioners can use the checklist indicators to monitor their use of the checklist indicators. The checklist indicators include different elements or key characteristics of a practice that, taken together, operationally define an evidence-based or evidence-informed intervention (Dunst, 2016). The rating scale for assessing use (adherence) of the checklist indicators ranges from seldom or never (was able to use the checklist indicator) to (was able to use the checklist indicators) most of the time.

Both practitioner and parent practice guides have been developed for each checklist. Each practice guide is formatted in the same way. Appendix 5-B shows a practice guide that was developed using the Family Capacity-Building Practices Checklist indicators. Each practice guide includes: (1) a description of the purpose and importance of a particular type of practice, (2) 5 or 6 ideas, examples, and suggestions for how to implement the practice, (3) a vignette of a practitioner or parent using the practice, (4) short video clips of parents or practitioners using the practice, (5) outcome indicators for determining if the practice had expected child benefits, and (6) an external link to additional resources for similar types of practices. There are both web-based and mobile versions of each practice guide.

1.4. Social Validity Research

Practitioner and parent social validity judgments of different kinds of early intervention practice materials have been found useful for informing changes and improvements in different kinds of intervention materials (e.g., Dunst, Masiello, Meter, Swanson, & Gorman, 2010; Dunst, Pace, & Hamby, 2007; Dunst, Trivette, Gorman, & Hamby, 2010; Schwartz, 1996). Dunst et al. (2013), for example, used parents’ judgments of the social validity of four socially interactive robots to select the one robot that parents found most acceptable and judged most likely to be engaging to their children. The robot in turn was found effective for promoting young children’s early communication and language development (Dunst, Hamby, Trivette, Prior, & Derryberry, 2013a, 2013b).

Social validity judgments have also been traced to a number of parent, practitioner, and child outcomes. In a study of Head Start teachers, practitioner social validity ratings of practices constituting the focus of professional development were found to be related to how engaged the practitioners were in the professional development (Trivette, Raab, & Dunst, 2014). In another study of parents’ judgments of the social validity of interest-based child language learning practices, results showed that social validity was not only directly related to the parents’ fidelity of use of the practices with their children, but indirectly related to the rates of changes in child language development mediated by the frequency of child engagement in interest-based language learning activities (Dunst, Raab, & Hamby, 2016). Foster and Mash (1999), Strain, Barton, and Dunlap (2012), and Wainer and Ingersoll (2013) as well describe how social validity judgments are related to the fidelity of use of intervention practices and outcomes of interest.

Results from the field tests of three different practitioner performance checklists and three different parent practice guides are reported in this paper. Findings from the first field test were used to make changes and improvements in the checklists and practice guides subsequently evaluated in the second and third field tests. The changes made in response to practitioners’ social validity ratings and suggestions and recommendations were expected to be related to between field test differences for the first vs. second and third field test. We also expected to find: (1) changes in the practitioners’ social validity judgments for between field test comparisons and (2) fewer repeated suggestions for improving the checklists and practice guides.
2. Method

2.1. Participants

The field test participants were 42 practitioners from early childhood intervention programs in two states and an Early Head Start Program in a third state in America. The investigator has collaborated with the directors from all three programs on different initiatives, including a number of evidence-based studies. The program practitioners are knowledgeable about a wide variety of state-of-the-art and contemporary early childhood intervention practices and were considered excellent candidates for objectively evaluating the ECTA Center performance checklists and practice guides.

Table 5-1 shows the background characteristics of the participants. The majority of participants had bachelor’s or masters degrees. Most practitioners had degrees in early childhood education, early childhood special education, and special education, whereas the other practitioners reported their professional disciplines as speech and language pathology, child and family specialists, or early interventionists. The practitioners’ years of experience varied considerably ranging from less than one year to more than 20 years. None of these background characteristics are related to the practitioners’ social validity judgments (Dunst & Hamby, 2017).

2.2. Field-Test Survey

Foster and Mash’s (Foster & Mash, 1999) framework for developing social validity indicators for assessing the importance and acceptability of intervention practices, and the intended outcomes of the practices, was used to develop the field test survey items. The social validity items for both the intervention practices and expected outcomes of the practices were adopted from those used in other studies (e.g., Dunst et al., 2007; Dunst, Trivette, et al., 2010; Trivette, Dunst, Masiello, Gorman, & Hamby, 2009).

The field test surveys each included three sections with each section including four social validity items. The first section included social validity questions about the performance checklist (e.g., the checklist items are easy to understand and follow); the second section included social validity questions about the practice guides (e.g., the practice guide would be worth the time and effort to use); and the third section included social validity questions about how well the checklist characteristics were incorporated into the practice guides (e.g., the majority of the checklist characteristics are included in the practice guide activities). Participants rated each social validity item on a 5-point scale ranging from Do Not Agree At All to Agree A Great Deal with each social validity statement. Each participant’s social validity responses were totaled to obtain a summated score for each survey section (Spector, 1992).

The respondents were also asked open-ended questions about both the checklists and practice guides. The open-ended checklist questions asked for suggestions to improve the: (1) checklist instructions, (2) checklist indicators, (3) self-evaluation scale, and (4) any other suggestions to improve the checklists. The open-ended practice guide questions asked for suggestions to improve the: (1) practice guide format, (2) practice guide activities, (3) child outcomes, (4) video examples, and (5) any other suggestions to improve the practice guides. The participants’ responses to each open-ended question were coded as no response or no suggestions (0), responses without a specific suggestion to improve the checklist or practice guide (e.g., the practice guide video included good examples of social games) (1), or responses with a specific suggestion to improve a checklist or practice guide (e.g., video captions of the activities would make the examples easier to follow) (2). The field test surveys were completed online using Qualtrics Survey Software.
2.3. Procedure

Each field test entailed an email invitation sent to the Director of each participating program which included information about a performance checklist, practice guide, the field test survey, and instructions for how to review the products and complete the survey. A URL link to the survey was embedded in the email. The Directors were asked to forward the invitation to their staff to decide if they wished to participate in the field test. Participation in the field test was voluntary and no personal identification information was requested in order to maintain anonymity and confidentiality.

Table 5-2 shows the checklists and parent practice guides that were the focus of practitioner judgments and suggestions. The Adult-Child Interaction Checklist included practice indicators for engaging a child in interactive episodes to promote child interactional competencies. The Social Games parent practice guide for the checklist included lap games (e.g., peek-a-boo, so-big) that parents could use to engage their children in your turn-my turn interactions. The Natural Environment checklist included practice indicators for using everyday activities and routines as sources of child learning opportunities. The It's Natural parent practice guide for the checklist included activities for how to increase child engagement in everyday learning activities. The Naturalistic Instruction Checklist included practice indicators for responding contingently to child behavior and encouraging elaborations in child behavior competencies. The Learning Comes Naturally practice guide for the checklist included activities a parent could use to (1) engage a child in everyday activities and (2) respond to child engagement in ways supporting and strengthening child competence.

Practitioners’ judgments, comments, and suggestions from the first field test were used to make changes and improvements on both the checklists and practice guides, which were the focus of practitioner feedback on the second and third field tests. The changes to the checklists included clarifying the fact that the checklists were intended to be used by practitioners and not by parents, improving the checklist instructions for doing a self-evaluation, the wording of the checklist practice characteristics (indicators) to improve understandability, and changing the terminology for the checklist characteristics to improve meaning and intent. The changes to the practice guides included adding captions to the video examples of the practices, adding additional activities to the practice guides, providing suggestions about adaptations to the activities and practices, and improving the specificity of the child outcomes.

2.4. Methods of Analysis

Three 3 Between Field Test ANOVAs with the summed social validity scores as the dependent measures were used to evaluate differences in the practitioners’ ratings. Each ANOVA included a priori orthogonal contrasts comparing the second and third field test ratings to the ratings from the first field test in order to obtain the correct denominator term for computing the mean difference effect size for the between field test contrasts. Cohen’s $d$ effect sizes for the between field test contrasts were used as the primary metric to determine if the changes had discernible effects on the practitioners’ social validity judgments. Effect sizes rather than statistical significance were used for substantive interpretation because effect sizes and not $p$-values are the best estimates of the magnitude of the difference between two groups or comparisons (Coe, 2002). Effect sizes between .20 and .49 are considered small, effect sizes between .50 and .79 are considered medium, effect sizes between .80 and 1.19 are considered large, and effect sizes of 1.20 or higher are considered very large (Cohen, 1988).

The percent of indicators rated a 4 or 5 on the 5-point scale on the field test surveys were computed for ascertaining if the social validity ratings reached a generally agreed upon level (85%) of acceptability and importance (e.g., Carter, 2009; Finn & Sladecek, 2001; Meadan, Ostrosky, Zaghlawan, & Yu, 2009; Strohmeier, Mulé, & Luiselli, 2014). The percent of indicators rated as acceptable and important were computed separately for the performance checklists, practice guides, and the compatibility of the checklists and practice guides. A consumer science perspective of social validity appraisals indicates that when at least 85% of items on a 5-point scale are rated a 4 or 5, those judgments are associated with continued use of a service, product, or practice (Bruder & Dunst, 2015; Dunst & Trivette, 2005; Reichheld, 2003).

A series of between field test chi-square analyses
was used to evaluate the participants’ suggestions to improve the checklists and practice guides. The dependent measure was the percent of participants who made suggestions for the four checklist questions and five practice guide questions. Fewer suggestions were expected on the second and third field tests compared to the first field test. Each chi-square analysis included a 2 Between Field Test (1 vs. 2 + 3) X 2 Response (Suggestion vs. No Suggestion) contrast where the chi-square test results were used to compute a Cohen’s $d$ effect size for between field test differences (Dunst & Hamby, 2012).

In addition to the effect size analyses, we computed the improvement indices for the changes on the checklists and practice guides for evaluating the practical importance of the changes (What Works Clearinghouse, 2014). This is a measure of the improvements in the checklists and practice guides as a result of the changes made in response to the participants’ suggestions. An improvement index can vary from -50 to +50, where positive indices favoring the second and third field tests indicate that the changes made based on the results from the first field test improved the checklists and practice guides. $ZCalc$ was used to compute the improvement indices (Neill, 2006).

Both sets of quantitative results were supplemented by content analyses of the responses to the open-ended questions. This was done to determine: (1) if the suggestions made during the first field test were mentioned in the second and third field tests, (2) identify new suggestions not mentioned in the first field test, and (3) identify additional changes to further improve the ECTA Center performance checklists and practice guides.

3. Results

3.1. Social Validity Judgments

Table 5-3 shows the mean social validity ratings from the three field tests and Table 5-4 shows the results from the three between field test ANOVAs and the mean difference effect sizes, and improvement indices for the first field test vs. second and third field tests. The Cohen’s $d$ effect sizes were small to medium where all the metrics indicated that there were increases in the practitioners’ social validity ratings as a function of changes made in response to the first field test results. Inspection of the mean scores for the three sets of ratings show, with the exception of the natural environment checklist mean scores, that the mean scores for the other two natural environment scores and all of the naturalistic instruction mean scores were larger than those for the first field test social validity scores. The differences were most pronounced in terms of changes in the social validity judgments for how well the checklist indicators were incorporated into the practice guides ($d = .44$) and the importance and acceptability of the practice guide activities ($d = .23$).

The Improvement indices associated with the effect size differences ranged between 6% and 17% for the changes in the mean social validity scores. These results indicate that there were small but nonetheless practically significant improvements from the first to second and third field tests where the improvement indices were larger for the changes made to the practice guides and for how well the checklists and practice guides were conceptually and procedurally related. These findings indicate that the changes made in response to the first field test results were primarily limited to the participants’ judgment of the practice guides and how well the checklist indicators were incorporated into the practice guides.

Figure 5-1 shows the percent of social validity indicators that were rated a 4 or 5 for the first field test vs. second and third field tests. An acceptable level of social validity was reached on all six measures. Thus, despite small between field test differences (Table 3), the majority of practitioners making judgments of the checklists and practice guides rated the field test products as both socially acceptable and important as evidenced by the percent of items rated a 4 or 5 on the 5-point social validity scale.

3.2. Practitioner Suggestions

The percentage of practitioner suggestions for improving different features of the checklists and practice

<table>
<thead>
<tr>
<th>Practitioner Ratings</th>
<th>Interaction</th>
<th>Environment</th>
<th>Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Performance Checklists (PC)</td>
<td>16.62</td>
<td>2.22</td>
<td>16.09</td>
</tr>
<tr>
<td>Practice Guides (PG)</td>
<td>17.51</td>
<td>2.89</td>
<td>17.98</td>
</tr>
<tr>
<td>PC/PG Relationship</td>
<td>16.39</td>
<td>2.18</td>
<td>17.49</td>
</tr>
</tbody>
</table>
guides for the first field test vs. the second and third field tests are shown in Table 5-5. Eight of the nine chi-square results were statistically significant, where there were fewer suggestions for improvements after changes were made based on the first field test results. The Cohen’s $d$ effect sizes for the between field test contrasts for all but two comparisons were large or very large. These results indicate that there were discernible improvements in the checklists and practice guides as evidenced by a fewer number of suggestions by the second and third field test participants.

The practical importance of the changes to the checklists and practice guides is shown in Table 5-5 in terms of the percent of fewer practitioner suggestions after changes made based on the first field test results. The improvement indices for the checklists ranged between 29% and 41%, and the improvement indices for the practice guides ranged between 25% and 41% (except for the differences in the suggestions for improving the child outcome indicators). These results indicate that the practitioners participating in the second and third field tests made fewer suggested changes compared to the suggestions of the first field test practitioners.

### 3.3. Open-Ended Practitioner Responses

All of the open-ended questions asked respondents for suggestions to improve some specific aspect of the checklists and practice guides. There were, nonetheless, many different positive appraisals of both products without any suggestions for improvements. Of the total number of participant responses to the open-ended questions, 28% of the comments on the checklists included positive comments, and 17% of the comments on the practice guides included positive comments. The positive comments on the checklists included things such as “The checklist offers a wide variety of ways to observe and encourage adult-child interactions,” “The checklist items were concise, understandable, and to the point,” and “The rating scale allows for a self-evaluation of the practices.” The positive comments on the practice guides included things such as “I thought the format was well designed and easy to follow,” “The activities can be used anywhere and anytime with different families,” and “The videos are great… and the captions make it easy to see what the practices look like.”

There were, however, a number of suggestions on the second and third field tests that continued to be mentioned even after the changes that were made based on the first field test results. These included: (1) the fact that the checklists are intended to be used by practitioners and not by parents and (2) questions about the instructions for how to use the checklists. There were also repeated suggestions about the wording of the checklist practice characteristics (e.g., too wordy; simplify the language). One of the common suggestions on the second and third field tests was the terminology on the checklists. The most frequently mentioned concern was that the checklists included terminology (e.g., contingent responsiveness, natural consequences) that some practitioners might not understand.

A number of practice guide suggestions on the first field test were also made in the second and third field tests. These included the wording on the practice guides and not knowing that the “You’ll Know That it’s Working” section of the practice guides were the expected child outcomes of the practices. There were also a number of comments about the practice guide videos where a few respondents said the videos included

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**Table 5-4**

ANOVA Results, Effect Sizes and Improvement Indices for the Interaction (1) vs. Environment (2) and Instruction (3) Performance Checklists and Practice Guides

<table>
<thead>
<tr>
<th>Practitioner Ratings</th>
<th>Between Field Test Comparisons</th>
<th>Field Test 1 vs. 2 + 3</th>
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<tr>
<td></td>
<td>$F$-test</td>
<td>$p$-value</td>
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<tr>
<td>Performance Checklists</td>
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<td>Practice Guides</td>
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<td>.860</td>
</tr>
<tr>
<td>PC/PG Relationship</td>
<td>.571</td>
<td>.572</td>
</tr>
</tbody>
</table>

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**Figure 5-1.** Percent of survey items rated as socially acceptable and important by the field test participants.

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86
content and examples that might not be understood by some parents.

4. Discussion

Practitioner social validity judgments of the ECTA Center performance checklists and parent practice guides, as well as suggestions for improving the checklists and practice guides, proved extremely valuable for making improvements in the early childhood intervention products and materials. Changes to the checklists and practice guides made in response to the findings from the first field test were reflected in the changes in social validity ratings and suggestions from the second two field tests, as evidenced by the improvement indices for the between field test contrasts (What Works Clearinghouse, 2014). Results showed that a rather short field test survey which included both closed-end and open-ended questions yielded information that was helpful in reworking the checklists and practice guides to improve their acceptability and likelihood of adoption and use (Foster & Mash, 1999). Results also showed that both prior to and after changes were made to the performance checklists and practice guides, the majority of social validity indicators were judged as acceptable and important for working with young children and their parents.

Despite the changes that were made in response to the first field test results, there were repeated as well as additional suggestions for improving the checklists, and to a lesser degree for improving the practice guides on the second and third field tests. This feedback will be used to make additional changes to the ECTA Center products to improve their acceptability and usability. Additional changes will be made on revised checklists and practice guides as indicated from the results from the next round of field tests.

Although beyond the work scope of the ECTA Center, a logical next step would be to evaluate the relationship between practitioner social validity judgments of the checklists and practice guides and the fidelity of use of both products in a manner recommended by Strain et al. (2012). As noted by these investigators, social validity judgments are important because they will likely be correlated with the fidelity of use of an intervention practice. This type of “liking–implementation with fidelity relationship” (Strain et al., 2012, p. 197) was found in a study by Dunst et al. (2016), where the effects of parents’ social validity judgments of interest-based everyday activity child language learning intervention practices were related to parents’ fidelity of use of the practices and indirectly related to children’s rates of language development mediated by the fidelity of use of the intervention practices. Therein lies the importance of early childhood intervention practices being judged as socially valid, and the need to evaluate practitioners’ beliefs about the importance and acceptability of the practices. Despite the call for systematically including social validity measures in research and field-test studies (e.g., Carter, 2009; Leko, 2014; Turan & Meadan, 2011), this has not become routine practice despite its contributions to understanding the adoption and use of different kinds

### Table 5-5

<table>
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<tr>
<th>Survey Items</th>
<th>Percent of Respondents</th>
<th>Interaction</th>
<th>Env. + Inst.</th>
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<th>p-value</th>
<th>Effect Size</th>
<th>Improvement Index</th>
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<td></td>
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<td>Other Suggestions</td>
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<td>9.93</td>
<td>.002</td>
<td>1.34</td>
<td>41</td>
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<tr>
<td><strong>Practice Guides</strong></td>
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<td></td>
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<tr>
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<td>1.33</td>
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<td>.002</td>
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<td>.541</td>
<td>0.21</td>
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<td>25</td>
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<td>3.90</td>
<td>.068</td>
<td>0.48</td>
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</tbody>
</table>

*Env. = Environment and Inst. = Instruction.*

87
of intervention practices. Field-test studies like the one described in this paper serve as a model for informing improvements in early childhood intervention practices.

References


# Appendix 5-A

## Family Capacity-Building Practices Checklist

This checklist includes practices for engaging parents and other family members in using child-level interventions to promote child learning and development in ways that strengthen parenting confidence and competence.

The capacity-building practices are used by a practitioner to promote a parent’s understanding and use of everyday activities and routines as sources of child learning opportunities.

The checklist can be used by a practitioner to plan intervention sessions with parents and other family members. The checklist also can be used to do a self-evaluation to determine if practitioner capacity-building practices actively involved parents in providing their children everyday learning opportunities.

Please indicate which practice characteristics you were able to use as part of parent and family member involvement in providing child learning opportunities:

<table>
<thead>
<tr>
<th>No.</th>
<th>Practice</th>
<th>Seldom or Never (0-25%)</th>
<th>Some of the Time (25-50%)</th>
<th>As Often As I Can (50-75%)</th>
<th>Most of the Time (75-100%)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Describe the use and benefits of everyday activities as sources of child learning opportunities</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Illustrate or demonstrate child engagement in a variety of everyday activities</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Describe and illustrate the importance of child interests and preferences for promoting child learning</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Use an everyday activity checklist to have a family member select which activities would be easiest to use with the child</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Together with the family, engage the child in familiar everyday activities</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Illustrate or demonstrate how adult prompt and positive (contingent) responsiveness to child behavior is used to sustain child learning in everyday activities</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Provide supportive guidance, feedback, and suggestions to the family members throughout the capacity-building activities</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Together with the family, identify five or six everyday activities that will be used as sources of child learning opportunities</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Engage family members in descriptions of which activities will be used for child learning and which parent responses will be used to promote learning</td>
<td>□ □ □ □</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Practitioner: _______________________________    Child: ________________________________     Date: ___________________

Everyday Learning Opportunities

Family capacity-building practices are used to support and strengthen parents and other caregivers' abilities to provide their children everyday learning opportunities. This is accomplished using a number of different strategies for supporting and strengthening parents' use of everyday activities to promote child learning and development.

Learning Way: Family-Provided Child Learning Opportunities

- Parents are more likely to use intervention practices with their children if they understand the benefits of everyday child learning opportunities. Begin by explaining both the purpose and goal of the learning opportunities and the specific benefits to young children.
- Illustrate or demonstrate how to engage a child in everyday learning activities. Video vignettes of parents providing their children everyday learning opportunities generally work best. Be sure to point out the key characteristics of the practices.
- Engage the parents in real-life (authentic) activities to provide their children everyday learning opportunities. The more familiar and routine the activities are to parents, the more likely they will feel confident using the activities as sources of child learning opportunities.
- Focus on two important child and parent behaviors as part of everyday child learning opportunities. The first is the importance of child interests and preferences as factors increasing child engagement in everyday activities. The second is the role parents' responsiveness to child behavior in everyday activities plays in supporting child learning.
- Provide parents supportive guidance and feedback during and after parents' use of everyday learning opportunities with their child. Point out which characteristics of the practice were used by the parents and describe the child benefits of the practices.
- Engage the parents in conversations, discussions, or review of their confidence using the practices. Provide specific positive comments, feedback, and suggestions in response to parents' descriptions to reinforce their sense of confidence.
- Jointly identify four or five everyday activities that the parents can use to provide learning opportunities for their child. The best activities are ones that provide the child multiple opportunities to engage in interactions with people, toys, and other materials.
- Identify things you can do to provide the parents regular, ongoing support to encourage the continued use of the activities. It is important to plan to take time together to review and evaluate the learning opportunities to decide which activities should be continued, modified, and added.

A Quick Peek  Felicity is a 3-year-old with multiple disabilities. Her mother, Emma, tells her daughter’s speech therapist that Felicity is beginning to show increased interest in looking at other people and is making more sounds than usual. Mom asks the therapist about the best times to work on her daughter’s speech. The therapist describes how there are many opportunities throughout the day that can be used to encourage Felicity to use sounds in interactions with mom, dad, and other family members. The therapist uses video she has stored on a tablet computer to show Felicity’s mom and dad how other parents have used everyday activities to encourage their young children to make sounds and “talk more.” She points out the children’s high level of interest in the activities and how the parents’ imitation of their children’s sounds gets the children to continue making the sounds. At the therapist’s next visit, Emma says that Felicity now “talks up a storm” while she plays lap games with her daughter. The therapist asks Emma to show her what this looks like and suggests trying to do the same thing in a few more activities. It isn’t long before Emma identifies more than a dozen activities during which she can encourage her daughter to make more sounds.

You’ll know it’s working if ...

- Parents use lots of everyday activities for child learning
- Parents are responsive to their children’s behavior in the activities
- The children are interacting with people and objects in the activities

Learn more about helping families make use of everyday learning opportunities from online resources such as:

**Tools and Guides to Facilitate Family Engagement** on the EI Excellence website

ECTA Center
Early Childhood Technical Assistance Center  www.ectacent.org
6. Practitioner-Informed Improvements to Early Childhood Intervention Performance Checklists and Practice Guides

Carl J. Dunst, Deborah W. Hamby, Linda L. Wilson, Marilyn Espe-Sherwindt and Donna E. Nelson

Abstract

Results from four early childhood practitioner field-tests of performance checklists and early intervention practice guides are reported. Findings from the first field-test were used to make changes and improvements in the checklists and practice guides evaluated in the second and third field-tests, and findings from the latter two field-tests were used to improve the checklist and practice guide evaluated in the fourth field-test. Results indicated that changes made in response to practitioners’ suggestions and feedback were associated with (1) progressive increases in the practitioners’ social validity judgments of the checklists, practice guides, and checklist-practice guide correspondence, and (2) progressive decreases in the number of practitioner suggestions and feedback for improving the early intervention materials. The field-test research demonstrates the importance of practitioner input, suggestions, and feedback for improving the usefulness of early childhood intervention practices.

Keywords: Early childhood intervention, performance checklists, practice guides, social validity, practitioner appraisals

1. Introduction

Early childhood intervention for infants, toddlers, and preschoolers with identified disabilities or developmental delays and their families, as well as for young children who are at-risk for poor developmental outcomes for biological or environmental reasons is now common practice throughout the world (e.g., Farrell, Kagan, & Tisdall, 2016; Groark, Eidelman, Maude, & Kaczmarek, 2011; Guralnick, 2005; Odom, Hanson, Blackman, & Kaul, 2003; Sukkar, Dunst, & Kirkby, 2017). Early childhood intervention includes the experiences and learning opportunities afforded young children to promote acquisition of functional behavior (Bailey & Wolery, 1992; Dunst & Espe-Sherwindt, 2017) and the supports and resources provided to or procured by parents and other family members to strengthen family functioning (Cowan, Powell, & Cowan, 1998; Dunst, 2017b).

The field of early childhood intervention has a relatively short but rich history (Dunst, 1996; McLean, Sandle, & Smith, 2016; Meisels & Shonkoff, 2000). In the 50+ years since Hunt (1961) first noted that experiences early in a child’s life could alter developmental outcomes, and later, that responsive caregiving was an important factor in shaping those outcomes (Hunt, 1987), considerable advances have been made in terms of understanding which experiences under which conditions have which kinds of outcomes and benefits (e.g., Britto, Engle, & Super, 2013; Farrell et al., 2016; Odom & Wolery, 2003; Reichow, Boyd, Barton, & Odom, 2016). Early childhood intervention practitioners now have many choices and options in terms of the intervention practices they can use in their work with young children and their families.

Many factors influence practitioners’ adoption and use of different kinds of early childhood intervention practices, including, but not limited to, personal beliefs about practice-outcome relationships and one’s ability to use a practice competently and confidently (Bruder, Dunst, & Mogro-Wilson, 2011; Trivette, Dunst, Hamby, & Meter, 2012). These beliefs include the social valid-
ity appraisals of early childhood intervention practices and their intended outcomes (Kazdin, 2005). As noted by Foster and Mash (1999), subjective judgments of the importance and acceptability of intervention goals, practices, and outcomes likely influence practitioners’ adoption and use of different kinds of intervention procedures. According to Strain et al. (2012), intervention practices are not likely to be used by practitioners (or parents) if the practices themselves are not viewed as socially valid and worth the time and effort to use. Dunst, Raab, and Hamby (2016), for example, found the parents’ social validity judgments of interest-based child language learning practices were directly related to parents’ fidelity of use of the practices and indirectly related to child language development mediated by fidelity of use of the practices.

The study described in this paper is part of a line of research and practice on (a) the development of evidence-informed early childhood intervention performance checklists and both practitioner and parent practice guides and (b) the influences of practitioner feedback and suggestions for improving both sets of materials. The study involved four field-tests that solicited practitioner social validity judgments of selected checklists and practice guides as well as suggestions for improving both products. Findings from the first field-test were used to make changes in the checklists and practice guides in the second and third field-tests, and findings from the latter two field-tests were used to inform improvements to the checklist and practice guide in the fourth field-test. Preliminary findings from this line of research and practice indicated that changes made to the checklists and practice guides in response to practitioner evaluations of the intervention materials were associated with stronger social validity appraisals of revised checklists and practice guides (Dunst, 2017a).

2. Evidence-Informed Performance Checklists and Practice Guides

2.1. Performance Checklists

The performance checklists and practice guides that were the focus of field-test research were developed at the Early Childhood Technical Assistance Center at the University of North Carolina – Chapel Hill (www.ectacenter.org). The checklists were developed using a conceptualization- operationalization- measurement framework (Babbie, 2009; Dunst, 2017c; Dunst, Trivette, & Raab, 2015) where research findings from primarily research syntheses and reviews (Dunst, 2017d) informed checklist indicator selection or development. Performance checklists differ from other types of checklists by specifying a “list of tasks or steps required to complete a procedure [intervention practice] successfully” (Wilson, 2013, p. 4). According to Gawande (2009), these kinds of checklist indicators provide practitioners concrete reminders for how to implement an intervention practice consistently, reliably, and competently.

Twenty-nine performance checklists were developed by first using the Division for Early Childhood Recommended Practices (Division for Early Childhood, 2014) to identify internally consistent sets of practice indicators for different types of intervention practices where the final selection of checklist practice indicators were informed by research evidence. The checklists were all formatted in the same way because “applying organization to new learning causes learners to focus on the meaning” [intent] of the checklist indicators (Schwartz, 2014, p. 107).

Each checklist includes (1) a brief description of a checklist practice and how the checklist can be used, (2) a list of evidence-informed practice indicators, (3) a rating scale for doing a self-evaluation or coach-facilitated evaluation of the use of the practice indicators, and (4) space for recording notes about a practitioner’s experience using the checklist practices. Figure 6-1 shows the performance checklist that was the focus of practitioner evaluation in the fourth field-test. The reader is referred to Dunst (2017) and Chapter 2 for a more detailed description of the procedures used to develop the checklists.

2.2. Practice Guides

Two sets of practice guides were developed using the checklist indicators as the sources of intervention activities: One set for parents and other primary caregivers and a second set for early childhood intervention practitioners. The practice guides were also all formatted in the same way. Each practice guide includes: (1) a description of a practice and its intended outcome, (2) examples of activities for using a practice, (3) videos of parents or practitioners using the practice, (4) a vignette of parents or practitioners implementing a practice, (5) functional outcome indicators for determining if the practice had expected benefits, and (6) a link to external resources for additional ideas (activities) for using a practice. Figure 6-2 shows the practice guide for the Family Capacity-Building Practices Checklist used in the fourth field-test. The practice guides are modeled after ones that have been extensively field-tested and evaluated by parents, practitioners, and technical assistance providers in previous research and intervention studies (e.g., Dunst, Masiello, Meter, Swanson, & Gorman, 2010; Dunst, Trivette, Gorman, & Hamby, 2010; Trivette, Dunst, & Hamby, 2010).
Figure 6-1. Early childhood performance checklist evaluated in the fourth field-test.
Everyday Child Learning Opportunities

Family capacity-building practices are used to support and strengthen parents and other caregivers’ abilities to provide their children everyday learning opportunities. This is accomplished using a number of different strategies for supporting and strengthening parents’ use of everyday activities to promote child learning and development.

Learning Guide: Family-Provided Child Learning Opportunities

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- Provide parents supportive guidance and feedback during and after parents’ use of everyday learning opportunities with their child. Point out which characteristics of the practice were used by the parents and describe the child benefits of the practices.
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- Jointly identify four or five everyday activities that the parents can use to provide learning opportunities for their child. The best activities are ones that provide the child multiple opportunities to engage in interactions with people, toys, and other materials.
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ECTA Center
Early Childhood Technical Assistance Center
http://www.ectacenter.org/dcpa/
3. Hypotheses

The analyses focused on two primary and two secondary hypotheses. The two primary hypotheses were:

H1: The social validity judgments of the performance checklists and practice guides will increase linearly as a result of changes and improvements made in response to practitioners’ evaluations as evidenced by the sizes of effect for the linear increases and associated improvement indices.

H2: The number of practitioner suggestions for improving the checklists and practice guides will decrease linearly as a result of changes and improvements made in response to practitioners’ evaluations as evidenced by the sizes of effect for the linear increases and associated improvement indices.

The secondary hypotheses were:

H3: The sizes of effects and improvement indices for Field-Test 1 vs. Field-Test 4 will be larger than those for Field-Tests 2 + 3 vs. Field Test 4 as a result of the progressive changes and improvements made in response to practitioners’ evaluations of the checklists and practice guides.

H4: The sizes of effects and improvement indices for Field-Tests 1 + 2 + 3 vs. Field-Test 4 will provide the best estimates of the cumulative changes made in response to practitioners’ evaluations of the checklists and practice guides.

The four hypotheses were tested by a priori linear and orthogonal contrasts for between field-test comparisons in the analyses of the field-test research data.

4. Method

4.1. Participants

The participants were 67 practitioners from an Early Head Start Program in one state and two early childhood interventions programs in other states. The three programs have a history of using innovative practices where the program practitioners are knowledgeable about contemporary evidence-informed early childhood intervention practices. There were no between group differences in the percentage of participants in the different field-test studies, $\chi^2 = 6.68, df = 6, p = .3516$, nor in the percentage of participants in the type of early childhood program in the field-tests, $\chi^2 = 2.77, df = 6, p = .8375$.

The background characteristics of the participants are shown in Table 6-1. The majority of practitioners (75%) had either bachelor’s or master’s degrees. Most of the practitioners had degrees in early childhood education or early childhood special education/special education. The participants’ median years of experience ranged between 6 and 10 with 78% having from 6 to 20+ years of experience. Nearly two-thirds of the participants worked primarily with parents and their children (family-focused) and 37% worked primarily with children (child-focused). There were no between field-test differences for any of the participant background characteristics shown in Table 1, $\chi^2 = 0.17$ to 10.73, $df = 3$ to 15, $p = .1004$ to .9817.

<table>
<thead>
<tr>
<th>Table 6-1</th>
<th>Background Characteristics of the Field-Test Participants</th>
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<tbody>
<tr>
<td>Characteristics</td>
<td>Number</td>
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<td><strong>Education Degree</strong></td>
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</tr>
<tr>
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<td>14</td>
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<tr>
<td>BA/BS</td>
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<tr>
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<td>26</td>
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<td>42</td>
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<tr>
<td>Early Childhood Special Education/Special Education</td>
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</tr>
<tr>
<td>Other$^a$</td>
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</tr>
<tr>
<td><strong>Years of Experience</strong></td>
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<tr>
<td>&lt;1</td>
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<tr>
<td>Family-Focused</td>
<td>42</td>
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</table>

$^a$Speech and language pathologists, child and family specialists, early interventionists, and social workers/family workers.

4.2. Procedure

The performance checklists and practice guides that were the focus of the field-test evaluations are shown in Table 6-2. The four topic areas included child, parent-child, parent, and family-focused intervention practices. Both the checklists and practice guides included different kinds of interventions for (a) using everyday activities as sources of child learning opportunities and (b) parent sensitivity and responsiveness to child behavior in the activities as the primary caregiver practice to reinforce child competencies and sustain child engagement in the activities.
The checklist in the first field-test included practice indicators for strengthening caregiver-child relationships that focused on bidirectional, reciprocal interactions between interactive partners (Eshel, Daelmans, Cabral de Mello, & Martines, 2006). The practice guide for the checklist indicators included a number of different socially interactive games that caregivers could use to engage young children in your turn-my turn interactive episodes (e.g., Dunst, Pace, & Hamby, 2007).

The checklist in the second field-test included indicators for identifying the everyday activities that provide the most opportunities for child learning (Dunst, Bruder, Trivette, & Hamby, 2006). The practice guide included ideas and strategies for engaging a child in the activities (e.g., Dunst, Raab, & Trivette, 2013b). The checklist in the third field-test included indicators for using naturalistic teaching practices for reinforcing child behavior initiations and elaborations while engaged in everyday activities (Dunst, Raab, & Trivette, 2012). The practice guide included different kinds of intervention activities and strategies for using natural reinforcing consequences for reinforcing child behavior (e.g., Dunst, Raab, & Trivette, 2013a).

The checklist in the fourth field-test included methods for strengthening family capacity to provide a child everyday learning opportunities (Swanson, Raab, & Dunst, 2011). The practice guide included a set of step-by-step instructions for practitioners to use to encourage and support parent-mediated everyday child learning (e.g., Raab, Dunst, & Trivette, 2013).

The checklist and practice guide in the first field-test had not been subjected to prior review and feedback, and practitioner evaluations of both products were used as the baseline for evaluation of subsequent revisions and improvements to the checklists and practice guides in second and third field-tests. The changes to the checklists in response to practitioner feedback and suggestions included clarifying the purpose of the checklist instructions and intended users (practitioners), wording the checklist indicators to improve meaning and intent, clarifying how to use the checklist indicators to plan intervention sessions with parents, and how to use the rating scale to do a self-evaluation of how many and how well the checklist indicators were used with a child or parent. The changes to the practice guides included adding captions to the videos of parents or practitioners using the practices, adding additional intervention activities to the practice guides, including suggestions for making adaptations to the practice guide activities (where appropriate), and clarifying how to use the outcome indicators for evaluating the benefits of the practice guide activities.

Feedback and suggestions on the second and third field-tests were used to make additional changes to both the checklist and practice guide in the fourth field-test. The changes to the checklist included clarifying the difference between using the checklist indicators for a priori intervention planning and doing a post hoc self-evaluation of the use of the indicators and clarifying the instructions for how to use the checklist indicators for completing a self-evaluation. The changes to the practice guide included additional specificity in terms of the focus and intent of the practice guide as well as the practice guide activities.

4.3. Field-Test Survey

The survey included four sections: (1) practitioner social validity judgments of the checklists, practice guides, and correspondence between the practice guides and checklist indicators, (2) open-ended questions asking for suggestions to improve the checklists and practice guides, (3) the levels of experience needed for a practitioner to understand and use the checklists and practice guides, and (4) background information about the field-test participants (Table 6.1). Each field-test involved an email invitation sent to the directors of each program that included instructions for participation in the field-tests, PDFs of the checklists and practice guides, and a URL link to the survey. The program directors were asked to forward the email invitation to their staff. Participation in the field-tests was voluntary, and the field-test research was considered exempt from human subjects review because practitioners were asked only to evaluate materials designed for routine early childhood intervention. The surveys were completed online using Qualtrics Survey Software.
The social validity items for the performance checklists, practice guides, and checklist-practice guide correspondence (four per each section) were developed using Foster and Mash’s (1999) framework for developing indicators for measuring the importance and acceptability of intervention practices and outcomes. The social importance of the checklists and practice guides was measured in terms of the subjective value attributed to the intervention materials (e.g., The checklist items are easy to understand and follow; The practice guide activities would be engaging to most children). The social acceptability of the checklists and practice guides was measured in terms of judgments about the fit of the practices to everyday life (e.g., The checklist indicators would be easy to use with a parent or child; The practice guide would be worth my time and effort to use). The social validity items were each rated on a 5-point scale ranging from Do Not Agree At All (with the survey items) to Agree a Great Deal (with the survey items). The items were adopted from ones used in field-tests of other intervention practices (e.g., Dunst et al., 2007; Dunst, Trivette, et al., 2010).

Principal components factor analysis of the three sets of items in each field-test with orthogonal rotation each produced a single-factor solution indicating that summed scores were warranted as measures of social validity judgments (Spector, 1992). The average coefficient alpha for the checklist indicators was .89 (Range = .81 to .97), the average alpha for the practice guide indicators was .85 (Range = .77 to .91), and the average alpha for the correspondence between the checklists and practice guides was .92 (Range = .85 to .95). The alpha’s in all 12 factor analyses reached acceptable levels of internal reliability (Nunnally & Bernstein, 1994).

The open-ended questions for improving the checklists asked for suggestions about the (1) checklist instructions, (2) checklist indicators, (3) self-evaluation scale, and (4) any other suggestions for improvement. The open-ended questions for improving the practice guides asked for suggestions about the (1) practice guide format, (2) practice guide activities, (3) videos of the practices, (4) child outcomes, and (5) any other suggestions to improve the practice guides.

4.4. Methods of Analysis

Three (3) Between Field Test ANOVAs with pre-planned linear and between group contrasts were used to evaluate the effects of changes to the checklists and practice guides on participants’ social validity judgments. The independent variable was the different field-tests (Field-Test 1 vs. Field-Tests 2 + 3 vs. Field-Test 4). The linear contrasts and between field-test comparisons permitted tests of the four study hypotheses. The dependent measures in the three ANOVAs were the summated social validity scores for the performance checklists, practice guides, and correspondence between the checklists and practice guides.

The primary metrics for testing the study hypotheses were Cohen’s $d$ effect sizes and associated improvement indices (What Works Clearinghouse, 2014). Effect sizes rather than statistical significance testing is the preferred metric for substantive interpretation because effect sizes and not $p$-values are the best estimates of the magnitude of the differences between two groups or contrasts (Coe, 2002). As a general rule, effect sizes between .20 and .49 are considered small, those between .50 and .79 are considered medium, those between .80 and 1.19 are considered large, and effect sizes equal to or greater than 1.20 are considered very large. Improvement indices are measures of the practical importance of the changes made to the checklists and practice guides (Durlak, 2009). The indices convert effect sizes into a percentile change (gain) score by a target group. These indices can vary from -50 to 50 where a positive difference between later and earlier field-tests provides a measure of the amount of improvement that occurred as a result of changes made to the checklists and practice guides. $ZCalc$ was used to evaluate the improvement indices (Neill, 2006).

The primary analyses of the practitioners’ social validity judgments were supplemented by computing the percent of indicators rated a 4 or 5 on the 5-point scale to ascertain the overall levels of agreement with the indicators. As found in consumer sciences research, the larger the percent of indicators rated a 4 or 5 on a 5-point scale, the stronger the endorsement of a product, practice, or service (Mackiewicz & Yeats, 2014; Reichheld, 2003). The Mantel-Haenszel test for linear trends was used to determine if there were progressive increases in the percent of practitioners rating the social validity items a 4 or 5 from the first to fourth field-tests (SPSS Inc., 2005).

The effects of the changes made to the checklists and practice guides in response to practitioner suggestions were tested by both 3 Between Field-Test ANOVAs for the total number of practitioner suggestions and by 3 Between Field-Test Chi-Square analyses for dichotomous responses for each open-ended section. The same linear contrasts for the social validity appraisals were made for evaluating changes in the practitioner suggestions.

5. Results

5.1. Social Validity Judgments

Figure 6-3 shows the mean social validity scores for the four field-tests for each set of importance and acceptability judgments. The three between field-test ANOVAs
produced between group differences for the practitioner social validity judgments of the performance checklists, $F(2, 64) = 3.49$, $p = .0364$, and checklist/practice guide correspondence, $F(2, 64) = 4.94$, $p = .0101$, but not for the practice guides, $F(2, 64) = 0.42$, $p = .6562$.

The results for the linear contrasts and between field-test comparisons are shown in Table 6-3. There were small (practice guides) to medium (performance checklists and checklist/practice guide correspondence) linear increases from the first to fourth field-tests as evidenced by the sizes of effect for the linear trends. The effect sizes were associated with improvement indices of 9, 22, and 27 percent, respectively, in response to the progressive changes in the practice guides, checklists, and correspondence comparisons. The findings are consistent with Hypothesis 1 that changes made in response to the practitioners’ feedback and suggestions would be related to improvements in the social validity judgments of the checklists and practice guides.

There were small (practice guides) to large (checklists and checklist/practice guide correspondence) effect sizes for the differences between the Field-Test 1 vs. Field-Test 4 social validity judgments (Table 6-3). These were associated with improvement indices of 11, 32, and 36 percent, respectively, for the practice guides, checklists, and correspondence judgments. The effect sizes for the Field-Tests 2 + 3 vs. Field-Test 4 for the between field-test comparisons were small for both the checklists and checklists/practice guides correspondence. The between field-test comparisons were associated with improvement indices of 9% for the checklist differences and 13% for the checklist/practice guide correspondence differences. Comparisons of the two sets of results in Table 6-3 shows, as hypothesized, that the sizes of effect and associated improvement indices for Field-Tests 1 vs. 4 are considerably larger than those for Field-Tests 2 + 3 vs. 4.

The cumulative effects of the progressive changes made in response to the practitioner evaluations are evidenced from the Field-Tests 1 + 2 + 3 vs. Field-Test 4 comparisons. There were small (practice guides) to medium (checklists and checklists/practice guides correspondence) effect sizes for these between field-test comparisons. The effect sizes were associated with improvement indices of 8, 25, and 28 percent, respectively. The

<table>
<thead>
<tr>
<th>Table 6-3</th>
<th>Linear Contrasts and Between Field-Test Comparisons and Associated Significance Levels, Effect Sizes, and Improvement Indices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>Linear Trend</td>
</tr>
<tr>
<td>Performance Checklists (PC)</td>
<td>$p = .0107$</td>
</tr>
<tr>
<td>Practice Guides (PG)</td>
<td>$p = .1802$</td>
</tr>
<tr>
<td>PC/PG Correspondence</td>
<td>$p = .0025$</td>
</tr>
<tr>
<td>Cohen's $d$ Effect Sizes</td>
<td></td>
</tr>
<tr>
<td>Performance Checklists (PC)</td>
<td>0.59</td>
</tr>
<tr>
<td>Practice Guides (PG)</td>
<td>0.23</td>
</tr>
<tr>
<td>PC/PG Correspondence</td>
<td>0.74</td>
</tr>
<tr>
<td>Improvement Indices</td>
<td></td>
</tr>
<tr>
<td>Performance Checklists (PC)</td>
<td>22</td>
</tr>
<tr>
<td>Practice Guides (PG)</td>
<td>9</td>
</tr>
<tr>
<td>PC/PG Correspondence</td>
<td>27</td>
</tr>
</tbody>
</table>

NOTE: Both the linear trends and field-test comparisons all have numerator degrees of freedom = 1.
results are consistent with the hypothesized relationships between changes made in response to practitioner feedback and suggestions and improvements in the social validity judgments of the intervention practices.

The percent of social validity items rated a 4 or 5 on each section of the survey for the different field-tests are shown in Figure 6-4. There were linear increases in the percent of indicators rated a 4 or 5 for the performance checklists, $\chi^2 = 9.04, df = 1, p = .003, d = .79$, practice guides, $\chi^2 = 5.88, df = 1, p = .015, d = .62$, and checklist/practice guide correspondence, $\chi^2 = 10.98, df = 1, p = .001, d = .97$. The effect sizes for the linear trends were medium to large and associated with improvement indices of 29, 23, and 33 percent, respectively. The smaller effect size for the linear increase in the social validity ratings of the practice guides was not unexpected given the fact that practitioner judgments of the practice guides were higher than those for the checklist on the first three field-tests. As shown in Figure 6-4, 98% to 99% of the social validity items received the highest two ratings in the fourth field-test which are noticeably higher than that in the other three field-tests.

5.2. Practitioner Suggestions

Figure 6-5 shows the percent of practitioners who made suggestions for improving the checklists and practice guides in the different field-tests. The between field-test ANOVAs for the total number of practitioner suggestions produced between field-test differences for both the performance checklists, $F(2, 64) = 7.11, p = .0016$, and practice guides, $F(2, 64) = 10.51, p = .0001$. There were linear decreases in the number of suggestions for the checklists, $F(1, 64) = 11.41, p = .0012, d = .85$, and practice guides, $F(1, 64) = 18.31, p = .0001, d = 1.07$. Both sizes of effects were large for the linear decreases in the number of practitioner suggestions. The effect sizes were associated with improvement indices of 29% and 36% respectively. The pattern of results are consistent with the hypothesis that the practitioners would suggest fewer changes as a function of improvements made in response to their feedback and suggestions.

Further examination of the suggestions for improving the checklists found linear decreases in the percent of practitioners who made suggestions for changes to the checklist instructions, $\chi^2 = 6.43, df = 1, p = .011, d = .77$, the checklist indicators, $\chi^2 = 6.96, df = 1, p = .008, d = .83$, and the self-evaluating rating scale, $\chi^2 = 2054, df = 1, p = .0000, d = .45$. The sizes of effects were medium, large, and small, respectively, and associated with improvement indices between 17% and 30%. There were also linear decreases in the percent of practitioners making suggestions to improve the practice guide format, $\chi^2 = 12.43, df = 1, p = .0000, d = 1.15$, practice guide activities, $\chi^2 = 9.49, df = 1, p = .001, d = .87$, practice guide outcome statements, $\chi^2 = 2.06, df = 1, p = .051, d = .38$, and videos of parents or practitioners using the practices, $\chi^2 = 17.17, df = 1, p = .0000, d = 1.36$. The effect sizes were small to very large and associated with improvement indices between 15% and 41%. These findings, taken together, further support hypothesized relationships between changes made in response to the practitioners’ evaluations of the checklists and practice guides and fewer suggestions for improving the intervention practices.

6. Discussion

Findings described in this paper provide support for the two primary hypotheses that changes made to the performance checklists and practice guides in response to early childhood practitioners feedback and suggestions would be related to the study outcomes. Results showed that practitioners’ social validity ratings increased as a function of the improvements to both the performance checklists and practice guides and also to the checklist/practice guide correspondence.
practice guide correspondence. Results also showed that there were fewer suggestions for making changes to the checklists and practice guides as a function of using practitioner feedback to improve both sets of products.

The patterns of results also provide support for the two secondary hypotheses. The sizes of effect for the first vs. fourth field-tests were larger than those for the second and third vs. fourth field-tests (Table 6-3). These results were expected because fewer suggestions for changes to the checklists and practice guides were made on the second and third field-tests compared to the first field-test (Figure 6-5). The cumulative effects for the changes made in response to practitioners’ suggestions were evidenced by the sizes of effect for the first three field-tests vs. the fourth field-test. Both the effect sizes for these comparisons and improvement indices (Table 6-3) indicated that the progressive sets of changes made in response to practitioners’ suggestions were associated with the highest social validity rating (Figure 6-3) and fewest suggestions for change (Figure 6-5) on the fourth field-test.

The fact that the effect sizes and improvement indices for the practice guides were smaller than those for the performance checklists and checklist-practice guide correspondence deserves comment in order to place the results in empirical context. The practice guides were modeled after ones that had previously been field-tested with parents and practitioners where the results were used to improve the intervention materials (e.g., Dunst, Trivette, et al., 2010; Trivette, Dunst, Masiello, Gorman, & Hamby, 2009). It was therefore not unexpected that the majority of social validity indicators for the practice guides on the first three field-tests were higher than those for the checklists and checklist-practice guide correspondence (Figures 6-3 and 6-4). This was the case because the practice guide format and content were informed by lessons learned in previous research and practice.

The focus on the social validity of the performance checklists and practice guides was based on research indicating that subjective judgments of the importance and acceptability of intervention practices and outcomes are related to both adoption and fidelity of use of the practices (e.g., Dunst et al., 2016; Strain et al., 2012; Trivette, Raab, & Dunst, 2014; Wainer & Ingersoll, 2013; Wehby, Maggin, Moore Partin, & Robertson, 2011). As noted by Strain et al. (2012), these “liking-implementation with fidelity relationships” (p. 197) are important because they help explain at least the likelihood of early childhood intervention practices being used as intended.

The study described in this paper has both strengths and limitations. One strength is the fact that the procedures used to inform changes in the checklists and practice guides illustrates how consumer level input can be used to improve social validity appraisals of the intervention materials constituting the focus of evaluation. Another strength is establishing the inverse relationship between increases in social validity ratings and concomitant decreases in practitioner suggestions for changes. In another set of analyses in this line of research and practice, practitioners’ cognitive judgments of the performance checklists and practice guides were the only variable accounting for variations in the social validity ratings of the intervention materials (Dunst & Hamby, 2017).

One limitation of the study is the fact that the field-tests were conducted in only three early childhood intervention programs. Therefore, it is not known if practitioners in other early childhood intervention programs would judge the checklists and practice guides in the same or different ways. Another limitation is the fact that only 4 of 29 performance checklists and only 4 of 67 practice guides were evaluated in the field-tests. Whether other checklists and practice guides would be judged similarly is therefore not known.

Finally, we note that advances in our understanding of the role social validity judgments play in practitioners’ and parents’ use of different kinds of early childhood intervention has broadened our knowledge of the antecedents for and conditions under which intervention practices are used with fidelity (Leko, 2014; Strain et al., 2012). One simple way of assessing practitioners’ and parents’ social validity appraisals is to ask the question “Was using XYZ practice worth your time and effort or was it more trouble than it was worth?” If a practitioner or parent responds that it was not worth the trouble to use, it is unlikely that the practice will be used as intended and with fidelity.

References


7. Parents’ Social Validity Appraisals of Early Childhood Intervention Practice Guides

Carl J. Dunst

Abstract

Findings from three field-tests of parents’ ratings of early childhood intervention practice guides are reported. Results from the first field-test were used to inform changes to the practice guides in the second field-test, and results from the second field-test were used to inform changes to the practice guides in the third field-test. Parents’ judgments of the practice guide designs and their social validity appraisals of the practice guide intervention activities and child outcomes were correlated with parent-informed improvements in the intervention materials. The results add to the knowledge base in terms of how parent-informed improvements to the practice guides are related to product design judgments and the social validity appraisals of the importance and acceptability of early childhood intervention materials.

Keywords: Early childhood intervention, parent practice guides, product design judgments, social validity appraisals

1. Introduction

Early childhood intervention includes the learning experiences and opportunities used with infants, toddlers, and preschoolers to promote and enhance the children’s development (Dunst & Espe-Sherwindt, 2017; Groark, Eidelman, Maude, & Kaczmarek, 2011; Guralnick, 2016; McWilliam, 2015). Early childhood intervention practitioners often support and strengthen parents’ and other primary caregivers’ abilities to use these experiences and opportunities to promote the learning and development of their young children (e.g., Acar & Akamoğlu, 2014; Bernheimer & Keogh, 1995; Friedman, Woods, & Salisbury, 2012). There is, however, considerable variability in the extent to which parents use the experiences and opportunities as early childhood intervention practices with their children (Halgunseth, 2009; Korfmacher et al., 2008; Roggman et al., 2016).

Among the many reasons parents use or do not use early childhood intervention practices with their children are their beliefs about the importance and acceptability of the practices and the intended child outcomes of the practices (e.g., Dunst, Trivette, Prior, Hamby, & Embler, 2013b; Reimers & Wacker, 1988). These types of beliefs or subjective judgments have been described as social validity appraisals (Foster & Mash, 1999). As noted by Strain, Barton, and Dunlap (2012), an intervention practice is not likely to be used by a parent (or a practitioner) if it is not considered worth the time and effort to use. This was demonstrated in a study by Dunst, Raab, and Hamby (2016) where parents’ social validity appraisals of interest-based child language learning practices were related to the fidelity of use of the practices, where fidelity of use of the practices in turn was related to improvements in the children’s language development.

Cognitive appraisals of the design characteristics of materials or products also influences people’s beliefs about the usability of different products and materials (Bloch, 1995). This has been described as the aesthetics-usability effect (Lidwell, Holden, & Butler, 2003). Research on the design properties (attractiveness, appearance, organization, aesthetics, etc.) of a product indicates that design matters a great deal when a person does or does not judge products, materials, etc. as having personal benefit or usability (e.g., Hamborg, Hülsmann, & Kaspar, 2014; Seva, Gosiaco, Santos, & Pangilinan, 2010; Sonderegger & Sauer, 2010; Spague, Pennefather, Marquez, Yeaton, & Marquez, 2011).

The study described in this paper is part of a line of research and practice investigating parents’ and practitioners’ judgments and appraisals of early childhood intervention practice guides where end-user suggestions and feedback were used to improve the design, organization, and content of the intervention materials (e.g., Dunst, C. J. (2017). Parents’ social validity appraisals of early childhood intervention practice guides. *Journal of Educational and Developmental Psychology, 7*(2), 51-58. doi:10.21831/reid.v3i1.14158. Reprinted with permission. This is an open-access article distributed under the terms and conditions of a Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).
or her child, a vignette of parents using a practice with strategies, etc.) for a parent to use a practice with his child. The practice guide format is both interesting to my child and appealing to my child learn;" "The practice would help my child learn;" "The practice guide activities would be interesting to my child"); and one program design item ("The practice guide format is both attractive and appealing"). The eight items were each rated on a 5-point scale ranging from Do Not Agree at All to Agree a Great Deal with the survey statements.

2.4. Methods of Analysis

Three between field-test ANOVAs with a priori tests for linear trends were used to determine if there were progressive increases in both the parents’ practice guide activities and intended child benefits. Lessons learned from the first field-test informed changes and improvements in the practice guides in the second field-test, and lessons learned from both the first and second field-tests informed changes and improvements in the practice guides in the third field-test. The latter involved captioned videos of parents using the practices with their children and an external link to other resources for using the practice to promote child learning and development. Figure 7-1 shows one of the practice guides evaluated by parents in the third field-test.

2.3. Procedure

Invitations to participate in the field-tests were posted on parent and early child intervention organization websites, on parent organization listserves, and parent organization web-based newsletters. Requests were also sent to early childhood program directors who were asked to distribute the invitations to interested parents. The invitations included a description of the purpose of the field-tests and instructions for choosing and reviewing a practice guide. The respondents were asked to read the practice guide with a specific focus on the practice guide activities and intended child outcomes. The invitation also included a web-based link to the field-test survey for respondents to evaluate the practice guides.

The survey included eight parent appraisal items, space for making comments or suggestions for improving the practice guides, a question about the age of the parent’s child, and a question about their child’s early childhood intervention program. The survey included items measuring parents’ appraisals of the practice guide design, practice guide intervention activities, and practice guide child outcomes. The parent appraisal items included four items measuring the social validity of the practice guide intervention activities (e.g., “The practice would easily fit into my everyday schedule;” “The practice would be worth my time and effort to use”), three social validity items measuring the intended child outcomes of the practice (e.g., “The practice would help my child learn;” “The practice guide activities would be interesting to my child”), and one program design item (“The practice guide format is both attractive and appealing”). The eight items were each rated on a 5-point scale ranging from Do Not Agree at All to Agree a Great Deal with the survey statements.

2.2. Practice Guides

The practice guides are formatted in similar ways. Each practice guide includes a description of an intervention practice and the intended benefits or outcomes of the practice, a description or list of activities (methods, strategies, etc.) for a parent to use a practice with his or her child, a vignette of parents using a practice with their children, and a list of three outcome indicators for determining if the practice guide activities had intended child benefits. Lessons learned from the first field-test informed changes and improvements in the practice guides in the second field-test, and lessons learned from both the first and second field-tests informed changes and improvements in the practice guides in the third field-test. The latter involved captioned videos of parents using the practices with their children and an external link to other resources for using the practice to promote child learning and development. Figure 7-1 shows one of the practice guides evaluated by parents in the third field-test.

2.1. Participants

The participants were 173 parents and other primary caregivers of infants, toddlers, and preschoolers involved in early childhood intervention programs throughout the United States. The parents were recruited through parent organizations and early childhood programs and by announcements on parent organization websites and listserves.

The participants’ children were receiving early childhood intervention because of identified disabilities, developmental delays, or because they were at-risk for poor developmental outcomes for medical (e.g., low birth weight) or socio-environmental (lower family socioeconomic status) factors. Forty-two percent of the children were involved in birth to age three early intervention or Early Head Start programs, and 58% of the children were involved in age three- to five-year-old early childhood-special education or Head Start programs.

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2.4. Methods of Analysis

Three between field-test ANOVAs with a priori tests for linear trends were used to determine if there were progressive increases in both the parents’ practice
Learning Comes Naturally
Parents can use the everyday activities in their homes and communities to support their children’s participation in activities, children’s attempts to interact with people or materials, and their efforts to do new things. You can encourage your child’s participation and learning during everyday activities by providing your child opportunities to do what he or she can and likes to do during everyday activities, responding positively to your child’s attempts to interact with you and others, and helping your child do new and different things.

Learning Guide: Encouraging Your Child’s Participation and Learning

- Watch your child during everyday activities to find out what he or she likes to do and the things he or she is able to do. Notice the objects, people, activities, and actions that are your child’s favorite things to do, get your child to smile or laugh, be excited, or stick to an activity. Watch for the things your child can do that help him or her participate in different activities.

- Provide your child frequent opportunities to be involved in activities that match the things he or she is able to do and likes to do. Use toys and materials that can capture your child’s attention and interest. During the activities, give your child lots of opportunities and enough time to try to start interactions with toys, materials, you, or others.

- While your child is involved in the interest-based activities, notice what captures his or her attention. Pay particular attention to how your child starts to do something on his or her own, tries to start interactions with you or other people, or starts to play with toys and other objects in the activities.

- As soon as you notice your child starting to interact with people or materials in an activity, encourage your child to keep interacting by responding positively to him or her. You can show your enthusiasm and pleasure with your child’s actions, join in the activity and take turns with your child, repeat your child’s actions, or say something positive about what your child does.

- Encourage your child to stay involved in an activity by continuing to provide interesting materials and responding right away to his or her actions. Try to match the intensity of your response to the level of your child’s behavior.

- Consider your child’s special characteristics that influence how he or she participates in the activity. Give your child different types and the amount of support he or she needs to participate. For example, you might use a special seat that supports your child when interacting with toys. Or you might help your child physically by holding a toy so your child can reach it.

- During the activities, encourage your child to try to do something slightly new or different. Praise your child for trying new things, encourage your child to vary his or her behavior, show him or her how to do something a little bit differently, or add toys or materials that encourage your child to do something new or different. Give your child plenty of opportunities to practice things he or she is just learning to do in the activities.

A Quick Peek
Pilar knew that her daughter Esme loved putting things in containers and doing activities together, especially helping with chores. Esme was excited when Pilar suggested that it was time to take clothes out of the dryer. “I do it! I do it,” Esme exclaimed. Together they started taking the clothes out of the dryer. Pilar saw that Esme named the owner of the clothing as she dropped each piece in the laundry basket. “Mami. Papi. Esme,” she would say. Pilar smiled and repeated the names Esme said each time she put something in the basket. Then as Esme dropped a pair of her pants into the basket and said, “Esme.” Pilar responded with “Esme’s pants.” Esme grinned and reached for another pair of pants, saying “Esme’s pants,” as she handed them to Pilar. Pilar said, “Yes, Esme’s pants. Esme’s pink pants.” Esme laughed with delight and said, “Pink pants. Pink pants. Esme’s pink pants.” Pilar continued to help Esme name the articles of clothing along with the owner as they completed the chore together.

You’ll know the practice is working if ...

- Your child stays involved in activities for longer periods of time
- Your child starts an interaction with you or with toys/materials more often
- Your child does things in new and different ways during everyday activities

Learn more about naturalistic instruction from other experienced parents, your child’s teacher or early interventionist, and online activities and resources such as “Getting in Step with Responsive Teaching.”

ECTA Center Early Childhood Technical Assistance Center http://www.ectacent.org/idecpr/

Figure 7-1. Example of a practice guide that was the focus of parents’ evaluative judgments and appraisals.
guide design ratings and social validity appraisals of the practice guide intervention activities and child outcomes. The dependent variables were the average respondent ratings for the three sets of items so that the scores for all three measures ranged between 1 and 5. Cohen’s $d$ effect sizes for the linear trends were the primary metrics for substantive interpretation of the results since effect sizes rather than $p$-values provide the best estimate of the magnitude of improvements to the practice guide design and content (Coe, 2002).

The fit of the hypothesized model to the pattern of relationships among the field-test variables in the exploratory structural equation model were evaluated by the root mean square error of approximation (RMSEA), root mean square residual (RMSR), comparative fit index (CFI), and incremental fit index (IFI). The closer RMSEA and RMSR are to zero, and the closer CFI and IFI are to one, the better the fit of the model to the data. The standardized structural (path) coefficients were used to evaluate the direct and indirect effects of the variables in the model. These can range from -1.00 to 1.00 when the size of effect is a measure of the strength of relationships among the variables in the model.

3. Results

3.1. Between Field-Test Comparisons

The mean ratings for the practice guide design judgments and social validity appraisals are shown in Figure 7-2. There were between field-test differences in the mean scores for the practice guide design, $F(2, 171) = 8.16, p = .0004$. There was also a linear increase in the parents’ judgment of the practice guide design, $F(1, 171) = .80, p = .0000$, Cohen’s $d = 1.71$. Follow-up effect size calculations showed that the linear increases were primarily for the Field-Test 1 vs. Field-Test 2 and the Field-Test 1 vs. Field-Test 3 differences. The Cohen’s $d$ effect sizes for these two field-test comparisons were $d = .64$ and $d = .80$, respectively, for the parents’ judgments of the practice guide design, whereas the effect size for Field-Test 2 vs. Field-Test 3 was $d = .21$.

There were also between field-test differences in the mean scores for the parents’ social validity appraisals of the practice guide intervention activities, $F(2, 171) = 3.38, p = .0363$, and a linear increase in the social validity scores, $F(1, 170) = 5.94, p = .0158, d = 1.02$. Follow-up effect size calculations showed that the effect sizes for the parents’ social validity appraisals of the practice guide intervention activities was $d = .46$ for Field-Test 1 vs. Field-Test 2 and $d = .49$ for Field-Test 1 vs. Field-Test 3. In contrast, the effect sizes for Field-Tests 2 vs. 3 was $d = .04$.

There were no between field-test differences for the parents’ social validity appraisals of the practice guide child outcomes, $F(2, 171) = .68, p = .5090$. There was, however, a small effect size for the linear change in the mean scores, $F(1, 170) = 1.31, p = .2540, d = .48$.

3.2. Correlational Analyses

Table 7-1 shows the correlations between the field-test study measures. The patterns of relationships were as expected. Improvements to the practice guides were correlated with both the practice guide design judgments and social validity appraisals of the practice guide intervention activities but not the child outcomes. Practice guide design judgments were correlated with both social validity appraisals, and the social validity appraisals of

![Figure 7-2. Parents’ mean practice guide design judgments and social validity appraisals of the practice guide intervention activities and child outcomes.](image)
the practice guide intervention activities were correlated with social validity appraisals of the child outcomes.

3.3. Structural Equation Modeling Results

Figure 7-3 shows the results from the structural equation modeling analysis. RMSEA was .03, RMSR was .02, CFI was .99, and IFI was .99. These results indicate a good fit of the model to the relationships among the variables in the model (Table 7-1).

Progressive changes to the practice guides were also indirectly related to the social validity appraisals of the practice guide child outcomes mediated by both practice guide design judgments and practice guide intervention activity social validity appraisals, $\beta = .14$, $p = .0035$.

Parents’ practice guide design judgments were directly related to parents’ social validity appraisals of both the practice guide intervention activities and child outcomes, although the size of effect for the relationship with the intervention activities was four times larger than those for the child outcomes. The parents’ practice guide design judgments were also indirectly related to the parents’ social validity appraisals of the practice guide child outcomes mediated by the social validity appraisals of the practice guide intervention activities, $\beta = .57 \times .60 = .34$, $p = .0000$. The parents’ social validity appraisals of the practice guide intervention activities were directly related to their social validity appraisals of the practice guide child outcomes.

4. Discussion

Findings from the between field-test comparisons showed that parents’ product design judgments and social validity appraisals of the practice guide intervention activities and child outcomes increased as a function of improvements to the intervention materials. Results from the structural equation modeling analyses showed that there was an adequate fit of the hypothesized model to the pattern of relationships among the field-test variables. The two sets of findings, taken together, indicate that parent-informed improvements in early childhood intervention materials in general, and the parent practice guides specifically, can enhance the usability, acceptability, and importance of intervention products, materials, and practices.

As noted earlier, the field-tests described in this paper are part of a line of research and practice investigating (a) improvements in both parent and practitioner early childhood intervention practices (Dunst, 2017; Dunst, Pace, & Hamby, 2007; Dunst, Trivette, Gorman, & Hamby, 2010), (b) the relationship between end-user appraisals and judgments of the practices and fidelity of use of the practices (e.g., Dunst & Hamby, 2015; Dunst, Trivette, & Raab, 2014), and (c) the effects of fidelity of use of early childhood intervention practices on child outcomes (Dunst et al., 2016). This study adds to this knowledge base by demonstrating that end-user appraisals and judgments of intervention practices are related in discernible ways. The structural equation modeling results, together with those found in other studies (e.g., Dunst et al., 2016; Dunst et al., 2014; Trivette, Raab, & Dunst, 2014), also add to the knowledge base in terms of an understanding of the manner in which different types of personal beliefs influence judgments of materials and products (e.g., Dunst & Hamby, 2017; Seva et al., 2010).

Enhancing the usability of intervention materials (Santos, Fowler, Corso, & Bruns, 2000) and the acceptance and importance of intervention practices (Strain et al., 2012) have been “called for” to improve parents’ and

![Figure 7-3. Pathways of relationships among the four variables in the structural equation modeling analysis. (NOTE. The main pathways in the model are in bold.)](image-url)
practitioners’ adoption and use of early childhood intervention practices with infants, toddlers, and preschoolers. Santos et al. (2000), for example, noted that “we need to find ways to enhance the usability of [intervention] materials” (p. 20) so as to be acceptable to a wide range of end-users. Similarly, Strain et al. (2012) noted that improving judgments of the acceptability and importance of intervention practices can facilitate increased use of the practices. Studies like the one described in this paper contribute to these two goals by involving end-users in evaluating early childhood intervention practices and materials and making end-user-informed improvements in the practices and materials. The interested reader is referred to Rice and Valdivia (1991), Santos et al. (2000), and Springston and Champion (2004) for suggestions and guidelines for designing user friendly materials.

References


Moving research into practice, better known as closing the research-practice gap (e.g., Carnine, 1997; Greenwood & Abbott, 2001), has been the focus of attention ever since the beginning of contemporary interest in early childhood intervention (e.g., Engel, 1968; Hartup, 1970). Claims are often made that it takes 10 or more years to move research into practice (Mercy & Saul, 2009; Trochim, Kane, Graham, & Pincus, 2011). A number of strategies have been proposed for closing the research-practice gap. One approach has involved a call for practice-based research that directly informs everyday intervention (e.g., Crooke & Olswang, 2015). Another approach is to use implementation science as a framework for promoting use of evidence-based practices (e.g., Halle, Metz, & Martinez-Beck, 2013).

The final chapter in the monograph proposes a third strategy for bridging the research-to-practice gap in early childhood intervention. A knowledge management and sharing framework is described that includes key features of both practice-based research and implementation science. The framework, however, differs from both of these approaches by explicit attention to how to manage massive amounts of accumulated evidence to develop evidence-informed early childhood intervention tools (performance checklists, practice guides, etc.) specifically from the point-of-view of end-users (practitioners, family members, etc.). This was accomplished as part of the development of the products described in earlier chapters of the monograph by using methods and strategies proposed by knowledge management experts for using knowledge to improve performance outcomes (Asrar-ul-Haq & Anwar, 2016; Girard & Girard, 2015; Wang & Noe, 2010). The result was a knowledge management and sharing framework that includes five core features that were used to not only develop evidence-informed early childhood intervention performance checklists and practice guides, but to get the products directly in the hands of end-users using evidence-based dissemination practices (e.g., Cook, Cook, & Landrum, 2013; Dunn, Norton, Stewart, Tudiver, & Bass, 1994). As illustrated in the chapter in this final section of the monograph, the framework proved especially useful for getting from research to practice for improving early childhood intervention. The framework should prove useful for better knowledge management and sharing of evidence-informed early childhood intervention tools and practices.

References


8. Knowledge Management and Sharing in the Age of Exponential Knowledge Growth in Early Childhood Intervention

Carl J. Dunst

Abstract

Methods and strategies for managing exponential knowledge growth in early childhood intervention is the main focus of this chapter. Core ideas in the knowledge management and sharing literature were used to operationally define key concepts in terms of their applicability to early childhood intervention research and practice. A model and framework is described, and its utility illustrated, in terms of the development, evaluation, and dissemination of evidence-informed early childhood intervention performance checklists and practice guides described in the monograph. The model and framework evolved in the course of developing the evidence-informed early childhood intervention products and as a result of the challenges that arose in terms of ensuring the products were likely to be useful to end-users. Implications for broader-based use are described.

Keywords: Knowledge harvesting, knowledge synthesis, knowledge translation, knowledge packaging, knowledge transfer

Knowledge, if it does not determine action, is dead to us.
Plotinus, Roman philosopher (205AD – 270 AD)

1. Introduction

This final chapter includes a brief description of lessons learned as part of the development and evaluation of evidence-informed performance checklists and practice guides and a description of a knowledge management and sharing model applicable to early childhood intervention. The former is framed in terms of how problems and concerns with the Division for Early Childhood (2014) recommended practices were addressed and overcome as part of evidence-informed product development. The latter is framed in terms of the exponential knowledge growth in early childhood intervention and the need to better manage information about research and practice if it is to inform improvements in early childhood intervention practices.

A number of lessons learned as a result of the development, evaluation, and packaging of the performance checklists and practice guides informed continued improvements in how early childhood intervention performance checklists were conceptualized and operationalized (Dunst, 2017c; Dunst, Trivette, & Raab, 2015). Three lessons in particular guided product development. These were the result of challenges faced in response to the poorly designed Division for Early Childhood (2014) recommended practices and why the practices in many cases could not be used to inform identification or development of checklist indicators. The lessons learned were based on the lack of a conceptual framework guiding the development of the recommended practices, the need for better evidence for informing identification or development of checklist indicators, and the need for explicit attention to the design of the checklists and practice guides.

The exponential growth of knowledge in general (e.g., Meige & Schmitt, 2015), and knowledge growth in early childhood intervention in particular (see Chapter 1), has resulted in massive amounts of information that is
increasingly not used by knowledge users (practitioners, parents, etc.). It is no surprise, therefore, that there have been increased calls for better knowledge management (e.g., Girard & Girard, 2015; Vat, 2006), knowledge translation (e.g., MacDermid & Graham, 2009; Rabino
nowicz & Ray, 2018; Sudsawad, 2007), and knowledge sharing (e.g., Janus, 2016; Tangaraja, Rasdi, Samah, & Ismail, 2016) to inform and improve knowledge use. It is also no surprise that exponential knowledge growth has been paralleled by exponential growth in information about knowledge management and sharing. This is shown in Figure 8-1 in terms of the 11 five-year periods of time for knowledge growth in early intervention and early childhood intervention shown in Chapter 1, Figure 1-1 (p. 4). There were only 74 search results for knowledge management and only 29 search results for knowledge sharing in the five-year period beginning in 1960. In contrast, there were 216,000 search results for knowledge management and 73,800 search results for knowledge sharing for the five-year period between 2010 and 2014. A comparison of knowledge growth curves in early childhood intervention shown in Figure 1-1 with that shown in Figure 8-1 for knowledge management and sharing are much the same.

2. Lessons Learned

Three of the major lessons learned as a result of the work described in the previous chapters are briefly reviewed to highlight how those lessons informed the development of (a) the performance checklists and practice guides and (b) the knowledge management and sharing model and framework for early childhood intervention. These are by no means the only lessons learned, but are ones that heavily influenced the course of product development described in this monograph.

2.1. Challenges with the DEC Recommended Practices

In addition to the problems, concerns, and limitations noted in Chapter 1 and in other chapters in the monograph, a number of specific challenges surfaced that informed lessons learned in terms of how the performance checklists and practice guides were developed and packaged. Three are described here. The first is the lack of a conceptual framework that ties the DEC recommended practices together. The second is the way in which research evidence for the DEC recommended practices was amassed. The third is the failure to package the DEC recommended practices in ways that are consistent with generally accepted product design guidelines. Each of these resulted in the development and use of the systematic approach to product development described in the monograph and the use of the best available evidence for identifying and developing checklist indicators and preparing evidence-informed performance checklists and practice guides.

2.1.1. Lack of a Conceptual Framework. There are many excellent models and frameworks that help conceptualize the totality of practices that operationally define evidence-based and evidence-informed early childhood intervention (e.g., Guralnick, 2001; Odom & Wolery, 2003; Ramey & Ramey, 1998). These types of models and frameworks are helpful because they elucidate how different practices complement one another and, taken together, explain the expectant benefits of early childhood intervention and especially the relationships between different sets of practices (see e.g., Dunst & Espe-Sherwindt, 2017). These as well as other conceptual models and frameworks evolved from ever increasing evidence about practice-outcome relationships for different kinds of intervention practices, different kinds of outcomes, and for ways in which practices at different ecological levels or spheres of influence affect child, parent, family, and practitioner outcomes (see e.g., Kaufman, 1988; Spodek, 1996).

The framework used to develop the 2014 DEC recommended practices was procedural and not conceptual.
As a result, the manner in which the practices “go together” is implicit rather than explicit. A lesson learned from attempting to use the DEC recommended practices to identify or develop performance checklist indicators was that there is a lack of an evidence-based conceptual framework resulting in rather disjointed practices rather than an integrated set of practices. This was addressed as part of the development of the performance checklists and practice guides by preparing both sets of practices so that each included capacity-building and competency-enhancing indicators and key characteristics identified by research evidence for practice-outcome relationships (Chapter 3). As part of the development of both the performance checklists and practice guides, explicit attention was paid to the identification or development of practice indicators where research indicated that the indicators are related to favorable outcomes. This was the case for the child, family, and practitioner practices where practice-outcome relationships informed performance checklist and practice guide development.

2.1.2. Lack of Credible Evidence for the Practices. According to Snyder and Ayankoya (2015), the process for identifying the evidence for the 2014 DEC recommended practices after the practices were developed was: (1) topic area workgroups nominated evidence, (2) the recommended practices commission reviewed the evidence and provided feedback to the workgroups, and (3) topic area workgroups nominated additional evidence. This process failed to produce credible evidence for two reasons. First, as noted in Chapter 1, most of the research citations for the DEC recommended practices did not include evidence for the practices. Second, developing practices and then locating evidence for the practices is akin to a creationist perspective of research: “Here are our beliefs about practices. What facts can we find to support those beliefs?” The lesson learned from the approach to identifying evidence for the DEC recommended practices was that the process should have started with practice-based evidence (e.g., Crooke & Olswang, 2015; Dunst & Trivette, 2009; Green, 2008), where findings for practice-outcome relationships informed the development of the recommended practices, as was explicitly done as part of the development of the performance checklists and practice guides.

2.1.3. Lack of Well Laid-Out Practices. One of the parameters used to inform the development of the 2014 DEC recommended practices was that the “Practices should be written so they are observable and clearly describe the actions or behaviors of practitioners” (Snyder & Ayankoya, 2015, p. 17). The reader is referred to Chapter 1 for a detailed description of the fact that many of the practices are not stated in behavior terms where the intent is open to question. A lesson learned from using the recommended practices to develop performance checklists and practice guides was that if explicit guidelines were used to develop the recommended practices, the final use of terminology, wording, and formatting of the different sets of practices would have been better laid-out. This was determined not to be the case.

The claim that the 2014 DEC recommended practices are “well laid out” is not warranted. As noted in Chapter 1, that is not the case when evaluated against generally accepted design features (Lohr & Gall, 2008) and research evidence on formatting written materials to optimize text processing, understanding, memory, and recall (Crowder, 2015). The lesson learned from attempting to use the DEC recommended practices to inform performance checklist indicator selection or development is that there is a clear need for better prepared early childhood intervention materials and products if they are to inform improvements in practice and be viewed as socially important and acceptable by intended users (Dunst & Hamby, 2017; Strain, Barton, & Dunlap, 2012).

3. Knowledge Management and Sharing Framework

As illustrated in Figure 8-1, there has been exponential growth in attention to knowledge management and sharing in the published literature. Girard and Girard (2015) compiled more than 100 definitions of knowledge management in 25 fields and disciplines. The majority of definitions include multiple terms and elements such as knowledge capturing, finding, selecting, identifying, organizing, distilling, preparing, sharing, and disseminating evidence-informed information in ways that improve individual, program, organizational, and institutional practices and performance. A review and analysis of the knowledge management literature, with a focus on the development of evidence-informed performance checklists and practice guides, resulted in five key features that guided the development and evaluation process described in this monograph. The five features and the applicability to knowledge management and sharing in early childhood intervention are shown in Table 8-1. These five features, taken together, capture the processes described in the previous chapters.

3.1. Knowledge Harvesting

The terms harvesting, finding, capturing, etc. have been used interchangeably in the knowledge management literature to refer to the processes and procedures used to identify knowledge to achieve specific goals or
purposes (e.g., Cotnoir-Bichelman, Thompson, McKerchar, & Haremza, 2006; Pierson, 2013; Vat, 2006). One important source of knowledge is extant research evidence, and especially evidence about practice-outcome relationships (Graham et al., 2006; MacDermid & Graham, 2009). This type of evidence is found in studies of the relationships between different kinds of practices and outcomes of interest, and especially where the specific characteristics of practices are found to be related to those outcomes (Dunst, 2016). As noted by Graham et al. (2006), “This [type of] knowledge often takes the form of systematic reviews, including meta-analyses and meta-syntheses” (p. 19). The research described in Chapter 3 includes precisely this type of knowledge and was a first step toward identifying evidence-based practice-outcome data used to inform the development or identification of performance checklist indicators.

### 3.2. Knowledge Synthesis

Searches for research evidence of practice-outcome data can and often does result in a mix of relevant and nonrelevant knowledge. Located knowledge needs to be systematically examined to (1) sort out useful from non-useful evidence and (2) to examine and evaluate captured knowledge to identify which practice characteristics, active ingredients, and core features best explain practice-outcome relationships. This process is at the core of knowledge synthesis (Mitton, Adair, McKenzie, Patt, Ten, & Perry, 2007) or what Vat (2006) calls knowledge scaffolding. Graham et al. (2006) described this process as knowledge funneling, and noted that “As knowledge moves through the funnel, it becomes more distilled and refined and presumably more useful to [knowledge users]” (p. 18).

One of the most effective synthesis strategies is the “aggregation of existing knowledge [that] involves the application of explicit and reproducible methods to the identification, appraisal, and synthesis of information relevant to specific questions [or purposes]” (Graham et al., 2006, p. 19). Systematic reviews and meta-analyses (Davies, 2000) are most relevant, and especially practice-based research syntheses (Dunst, 2016) that specifically focus on identifying which practice characteristics matter most in terms of explaining practice-outcome relationships. As part of the search for and syntheses of

<table>
<thead>
<tr>
<th>Table 8-1</th>
<th>Key Characteristics of Knowledge Management and Sharing Practices and their Applicability to Early Childhood Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Management and Sharing</td>
<td>Early Childhood Intervention</td>
</tr>
<tr>
<td><strong>Knowledge Harvesting</strong></td>
<td><strong>Knowledge Harvesting</strong></td>
</tr>
<tr>
<td>Process of identifying and capturing knowledge for the explicit purpose of identifying the best available evidence for specific kinds of intervention practices (e.g., Pierson, 2013; Vat, 2006).</td>
<td>Process of searching the published and unpublished literature to identify research evidence for practice-outcome relationships.</td>
</tr>
<tr>
<td><strong>Knowledge Synthesis</strong></td>
<td><strong>Knowledge Synthesis</strong></td>
</tr>
<tr>
<td>Process of systematically examining and evaluating captured knowledge in order to make sense of aggregated research evidence (e.g., Graham et al., 2006; Vat, 2006).</td>
<td>Process of synthesizing research evidence with an explicit focus on identifying the key characteristics, active ingredients, and core features of practices that best explain practice-outcome relationships.</td>
</tr>
<tr>
<td><strong>Knowledge Translation</strong></td>
<td><strong>Knowledge Translation</strong></td>
</tr>
<tr>
<td>Process of translating evidence-based knowledge into concrete steps or practices informed by that knowledge for the purpose of improving everyday practice (e.g., Bennett &amp; Jessani, 2011; MacDermid &amp; Graham, 2009).</td>
<td>Process of using evidence-based knowledge about the key characteristics of practices to inform the selection or development of evidence-informed practice indicators.</td>
</tr>
<tr>
<td><strong>Knowledge Packaging</strong></td>
<td><strong>Knowledge Packaging</strong></td>
</tr>
<tr>
<td>Process of using evidence-based knowledge to develop tools and other products that are user-friendly and likely to be adopted and used by end-users (e.g., Ardimento et al., 2007; Ardimento et al., 2009).</td>
<td>Process of using evidence-informed practice indicators to develop intervention tools and products to promote end-user adoption and use of evidence-based practices.</td>
</tr>
<tr>
<td><strong>Knowledge Transfer</strong></td>
<td><strong>Knowledge Transfer</strong></td>
</tr>
<tr>
<td>Process of exchanging and disseminating evidence-based products broadly to potential end-users to facilitate adoption and use of evidence-based practices (Mitton et al., 2007; Tangaraja et al., 2016).</td>
<td>Process and practices used to make evidence-informed intervention products broadly available to practitioners, family members, and other end-users.</td>
</tr>
</tbody>
</table>
research evidence that informed identification of the key characteristics of different kinds of evidence-based early childhood intervention practices, systematic reviews and meta-analyses proved more informative, whereas summative and narrative reviews proved least informative (Dunst, 2016).

3.3. Knowledge Translation

Knowledge translation is the process of using evidence-based information that can directly inform action (Straus, Tetroe, & Graham, 2009). MacDermid and Graham (2009) defined knowledge translation as “Research use is the process by which specific research-based knowledge is implemented in practice” (p. 127). The term specific research-based knowledge as used in this chapter refers to research evidence about the key characteristics, active ingredients, and core features of intervention practices to develop evidence-informed practice indicators. Grimshaw et al. (2012) concluded, based on a review of the knowledge translation literature, that the “basic unit of knowledge translation should be up-to-date systematic reviews and other syntheses of research findings (p. 1).

Although the process of using synthesized knowledge to identify which practice characteristics, among an array of characteristics, “matter most” can be a labor-intensive process, the benefits are more than worth the effort. The result is the identification of the smallest number of key practice characteristics that can be expected to mirror evidence-based practice-outcome relationships. This is described as the less is more principle (Halpern & Hakel, 2003; Hertwig & Todd, 2003) and refers to practices that include the smallest number of key characteristics or active ingredients that have been found to be empirically related to outcomes of interest (Dunst, 2016).

3.4. Knowledge Packaging

Isolation of the key characteristics of a practice, and using those characteristics to identify evidence-informed practice indicators, is no guarantee that the practices will be adopted and used by end-users. The knowledge needs to be “packaged” in ways that invite and encourage practitioners, parents, and other end users to see the practices as both acceptable and important for achieving desired outcomes (Dunst, 2017a; Strain et al., 2012). As described in detail in Chapter 1, this needs to be done in ways that adhere to generally accepted written product design features (Bloch, 1995) and the manner in which intervention materials are written and formatted (Lohr & Gall, 2008), where principles of consistency (Lidwell, Holden, & Butler, 2003) underscore product development. As noted by Lidwell et al. (2003), the usability of any product, including written material, is more “learnable when similar parts are expressed in similar ways. Consistency enables people to efficiently transfer knowledge to new contexts [and] learn new things quickly” (p. 56).

Knowledge packaging therefore needs to be done in a careful and deliberate manner if intervention products, tools, and materials are seen as worth using and likely to have intended benefits. As noted by Ardimento et al. (2007), the transfer of research evidence into usable products is dependent, in part, on how knowledge is packaged and is understandable to end-users. Steenis et al. (2017) found that the ways in which design considerations are incorporated into knowledge packaging matter a great deal in terms of end-user positive responses (evaluations) to the products. Previous chapters in the monograph include detailed information about how this was accomplished as part of the development and evaluation of the performance checklists and practice guides.

3.5. Knowledge Transfer

Knowledge transfer is the process of sharing evidence-based and evidence-informed packaged knowledge with end-users and other interested audiences (Ardimento, Baldassarre, Cimitile, & Visaggio, 2009). It includes a wide range of activities for promoting (Wang & Noe, 2010) adoption and use of intervention tools, materials, and products (Mitton et al., 2007). Both Tangaraja (2016) and Wang and Noe (2010) noted that knowledge transfer is a particular type of knowledge sharing that is intentional, carefully planned, and targets intended audiences.

Janus (2016) and Tsui (2006) both describe a myriad of activities for knowledge transfer and sharing. These include both traditional dissemination activities (e.g., publications, presentations) as well as more contemporary methods and strategies (e.g., websites, listervs). Effectively executed web-based knowledge transfer holds special promise for broad-based dissemination since it can easily reach large numbers of end-users (Levert, Lefebvre, & Proulx, 2017; Rodgers & Negash, 2007; Rowley & Hartley, 2008). Findings from a number of studies indicate that web-based knowledge transfer and dissemination can be especially effective in terms of putting evidence-informed products in the hands of end-users who have the capacity to improve the lives of children and their families (see e.g., Rodgers & Negash, 2007).

4. Utility for Developing Evidence-Informed Performance Checklists and Practice Guides

The five key characteristics of knowledge management and sharing, and their applicability to early childhood intervention (Table 8-1), were used to develop the
model and framework in Figure 8-2 for developing the evidence-informed performance checklists and practice guides constituting the focus of this monograph.

Knowledge harvesting was done in terms of literature searches of both the published and unpublished literature with a focus on research syntheses that included evidence for replicated practice-outcome relationships (Francis, 2012; Jasny, Chin, Chong, & Vignieri, 2011). The literature searches were conducted in multiple databases (ERIC, PsycInfo, ProQuest, etc.) using controlled vocabulary, key term, and natural language searches. The goal was to locate as many relevant reviews, syntheses, and meta-analyses for the practices that were the focus of performance checklist development. The particular reviews that included practice characteristics-outcome information were then harvested in terms of knowledge synthesis (Crooke & Olswang, 2015; Dunst, 2016; Forzani, 2014).

Knowledge synthesis was done in terms of the analysis of located studies for different practices to identify evidence for the particular practice characteristics that were associated with observed outcomes. This type of practice-based research evidence was used to identify and isolate the key characteristics, active ingredients, and core features that best explained practice-outcome relationships. These evidence-based results were, in turn, used to isolate what mattered most in terms of optimal practice outcomes.

Knowledge translation was accomplished in terms of using the key characteristics of evidence-based practices to identify or develop evidence-informed performance checklist indicators. The term evidence-informed is intentionally used to describe the use of evidence-based information as the foundation for developing the early childhood intervention performance checklists, where the indicators, taken together, operationally defined particular types of practices. The checklist indicators were also used as the foundation for developing the evidence-informed practice guides.

Knowledge packaging was done in terms of preparing the performance checklists and practice guides in similar ways consistent with product design features (Lohr & Gall, 2008) and principles of consistency (Lidwell et al., 2003) where both sets of products were judged as socially valued by end-users (practitioners and parents). The latter was accomplished in terms of end-user social validity appraisals and recommendations (Chapters 4-7) where results were used to make changes and improvements in both the performance checklists and practice guides.

Knowledge transfer was and is being done in terms of journal article publications (e.g., Dunst, 2017b; Dunst, 2017d; Dunst, Hamby, Wilson, Espe-Sherwindt, & Nelson, 2017) and conference presentations (e.g., Dunst, 2015), but is primarily being accomplished by making the performance checklists, practice guides, and associated products freely available on the ECTA Center website (ectacenter.org). Web-based knowledge transfer has been found to be an especially effective dissemination method (Cooper, Edelstein, Levin, & Leung, 2010). This was found to be the case as part of previous knowledge transfer efforts (see e.g., www.earlyliteracylearning.org) and as part of the dissemination of the checklists and practice guides described in the monograph. During the three years that the checklists and practice guides have been available on the Early Childhood Technical Assistance Center website, an average of 1461 checklists, 936 practitioner practice guides, and 605 parent practice guides have been downloaded each month.

5. Conclusion

The exponential growth in information and knowledge about early childhood intervention makes it almost impossible for practitioners, program developers, policy makers, and others to keep pace with advances in re-
search and practice. Knowledge management and sharing in early intervention or early childhood intervention is almost nonexistent. Searches for “knowledge management” AND “early intervention OR early childhood intervention” in ERIC, ProQuest Central, PsycINFO, and Google Scholar yielded only one citation (Rabinowicz & Ray, 2018).

This chapter included a description of a knowledge management and sharing model and framework informed by the knowledge management literature and applicable to harnessing knowledge in early childhood intervention and making that knowledge available to end-users in ways designed to promote adoption and use of evidence-informed practices. The model and framework evolved as part of the development of the early childhood intervention performance checklists and practice guides described in this monograph. The model and framework, or others described in the knowledge management literature (e.g., Asrar-ul-Haq & Anwar, 2016; Vat, 2006), are both warranted and needed if we are to be able to put the best evidence-informed practices in the hands of early childhood intervention practitioners, parents, and other end-users.

Overcoming the research-to-practice gap in early childhood intervention is most likely to occur when practice-based researchers focus on “better knowledge for better practices” (White, Booth, Cooke, & Addison, 2005, p. 55). Knowledge translation in ways that directly inform day-to-day practice is at least one way this might be accomplished. Better knowledge management and sharing practices are needed if research is to inform improvements in early childhood intervention. This chapter included a description of one way this can be accomplished.

References


Appendix A

Sources of Evidence for the Early Childhood Intervention Practices Performance Checklists

The research evidence for the early childhood intervention performance checklists described in Dunst (2017) as well as in Chapter 3 is included in this appendix. The appendix includes seven tables, one for each of the seven early childhood intervention practice areas shown in Table A. Each source of evidence is coded as either a research synthesis (RS) or an efficacy or effectiveness study (ES). Each appendix also includes a column showing which sources of evidence are the research foundations for which particular checklists(s). Table A shows the codes for the checklists in each practice area. The table is used to identify which sources of evidence are the foundations for each of the performance checklist practice characteristics and indicators.

Table A
Early Childhood Assessment and Intervention Performance Checklists

<table>
<thead>
<tr>
<th>Practice Areas</th>
<th>Practice Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Assessment Checklists</strong></td>
<td><strong>Instruction Checklists</strong></td>
</tr>
<tr>
<td>4. Informed Clinical Reasoning</td>
<td></td>
</tr>
<tr>
<td><strong>Environment Checklists</strong></td>
<td><strong>Interaction Checklists</strong></td>
</tr>
<tr>
<td>5. Natural Learning Opportunities</td>
<td></td>
</tr>
<tr>
<td><strong>Family Checklists</strong></td>
<td><strong>Teaming and Collaboration Checklists</strong></td>
</tr>
<tr>
<td>1. Family Capacity-Building Practices</td>
<td>1. Collaboration to Learn and Grow</td>
</tr>
<tr>
<td>2. Family-Centered Practices</td>
<td>2. Communication for Teaming</td>
</tr>
<tr>
<td>3. Family Engagement Practices</td>
<td>3. Families as Full Team Members</td>
</tr>
<tr>
<td>4. Informed Family Decision-Making</td>
<td></td>
</tr>
<tr>
<td><strong>Transition Checklists</strong></td>
<td></td>
</tr>
<tr>
<td>1. Hospital to Early Intervention</td>
<td></td>
</tr>
<tr>
<td>2. Early Intervention to Preschool</td>
<td></td>
</tr>
<tr>
<td>3. Preschool to Kindergarten</td>
<td></td>
</tr>
</tbody>
</table>

The sources of evidence included on each table is illustrative and not exhaustive of the research evidence for the performance checklists. The particular sources of evidence in the tables are most germane to the checklist practices where practice-outcome relationships have been established in research syntheses or individual studies that highlight the nature of the relationships between the checklist practices and the intended benefits of the practices.

The primary sources of evidence for the performance checklists are different kinds of research syntheses for identifying evidence-based early childhood intervention practices (Dunst, 2016). All of the research syntheses include studies where the largest number of investigations include evidence demonstrating an empirical relationship
between intervention practice characteristics and outcomes of interest or for demonstrating the relative efficacy of one intervention practice compared to another intervention practice. Finding the same practice-outcome relationships in different studies is a cornerstone for claiming that a practice is evidence-based or evidence-informed (e.g., Banerjee, Movahedazarhouligh, Millen, & Luckner, 2018; Francis, 2012; Jasny, Chin, Chong, & Vignieri, 2011; Simons, 2014). As noted by Banergee et al. (2018), this type of “replication research is critical for appraising research and identifying evidence-based [early childhood intervention] practices” (p. 246). As noted in Chapter 3, the performance checklists constituting the focus of this monograph include a substantial amount of research evidence for the checklist practice indicators.

References


### Appendix A-1

**Research Foundations for the Assessment Practices Checklists**

<table>
<thead>
<tr>
<th>Type of Evidence</th>
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<th>Sources of Evidence</th>
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*RS = Research synthesis and ES = Empirical study. See Table A for the checklist codes.*
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## Research Foundations for the Environment Practices Checklists

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## Appendix A-2, continued

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**Research Foundations for the Family-Focused Practices Checklists**

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\(^a\)RS = Research synthesis and \(^b\)ES = Empirical study. \(^c\)See Table A for the checklist codes.
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### Appendix A-4

**Research Foundations for the Instructional Practices Checklists**

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*RS = Research synthesis and ES = Empirical study. See Table A for the checklist codes.*
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<tr>
<td>RS</td>
<td>1, 2</td>
<td>Trembath, D., Mahler, N., &amp; Hudry, K. (2016). Evidence from systematic review indicates that parents can learn to implement naturalistic interventions leading to improved language skills in their children with disabilities. Evidence-Based Communication Assessment and Intervention, 10(2), 101-107. doi:10.1080/17499559.2016.1231367</td>
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### Appendix A-5

**Research Foundations for the Interactional Practices Checklists**

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**Appendix A-6**  
*Research Foundations for the Teaming and Collaboration Practices Checklists*

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*aRS = Research synthesis and ES = Empirical study. bSee Table A for the checklist codes.*
## Sources of Evidence

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### Appendix A-7

**Research Foundations for the Transition Practices Checklists**

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*RS = Research synthesis and ES = Empirical study. See Table A for the checklist codes.*
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Appendix B

Sources of Early Childhood Intervention Performance Checklists

This appendix includes sources of information about different kinds of early childhood intervention performance checklists. The particular checklists listed in the appendix adhere to a number of design features and characteristics consistent with best practice and research findings (e.g., Lidwell, Holden, & Butler, 2003; Lohr & Gall, 2008). First, each checklist includes indicators for a specific type of intervention practice (Wilson, 2013). Second, the checklists include the minimum number of indicators necessary for completing a practice in a competent manner (Gawande, 2009). Third, the checklist indicators, taken together, operationally define the key characteristics of a particular early childhood intervention practice (Dunst, 2017a). Fourth, research evidence was used to inform the selection or identification of the majority of checklist practice indicators (Dunst, 2017b). Fifth, the checklists are written in a way that facilitates end-user understanding of the key characteristics of a practice and the intended outcomes or benefits of the practice (Scriven, 2005).

The majority of performance checklists include only indicators for a specific type of early childhood intervention practice. A number of sources include indicators for different types of practices which, however, are organized (chuncked) into subsets of practices (e.g., Devereux Reflective Checklist for Teaching Practices; Parenting Interactions with Children Checklists). These are included because any one subset of practice indicators can be used independently of the other sets of indicators where the number of checklist indicators are limited to the minimum number of the most important practice characteristics (Gawande, 2009).

Most of the checklists are freely available on the World Wide Web. McWilliam’s (2010) book, Working with Families, is a major source of early childhood intervention performance checklists. Each chapter in the book includes checklists for different kinds of practices where most adhere to evidence-based design features (Lidwell et al., 2003; Lohr & Gall, 2008). The Infant Center (Herbert-Jackson, O’Brien, Porterfield, & Risley, 1977) and Toddler Center (O’Brien, Porterfield, Herbert-Jackson, & Risley, 1979) books are out-of-print but copies are likely to be available at most university libraries or through interlibrary loan. These two books are included because they were the foundations for illustrating how performance checklists could be used to facilitate practitioner use of desired practices (e.g., Harris, 1992; Lattimore, Stephens, Favell, & Risley, 1984; McGee, Almeida, Sulzer-Azaroff, & Feldman, 1992; McGee, Morrier, & Daly, 1999; Rogers-Warren, 1982). More recent studies as well include evidence for the value-added benefits of using checklists for promoting practitioner use of different kinds of early childhood intervention practices (e.g., Casey & McWilliam, 2011; Dunst, Raab, & Hamby, 2016; Gorden, 2017; Parsons, 2012; Trivette, Raab, & Dunst, 2014), and especially when a coach or colleague facilitates practitioner understanding and use of the checklist practice indicators by providing supportive guidance and feedback (e.g., Casey & McWilliam, 2011; Gorden, 2017).

Sources of Performance Checklists


References


Gorden, N. (2017). The effects of a performance checklist, self-monitoring, and graphical feedback on ratio of supervisor’s praise to feedback delivery to direct care therapists. (Masters of Science), The Chicago School of Professional Psychology, Chicago.


Appendix C

Sources of Early Childhood Intervention Practice Guides

This Appendix includes sources of information about different kinds of practitioner and family early childhood intervention practice guides (activities, guides, handouts, tip sheets, etc.). All of the practice guides are freely available on the World Wide Web.

A number of sources include extensive lists of practice guides for many different kinds of early childhood intervention practices. The Center for Early Literacy Learning website, for example, includes 61 practice guides for practitioners and 69 practice guides for parents and other caregivers (www.earlyliteracylearning.org). The Early Childhood Technical Assistance Center website includes 32 practice guides for practitioners (www.ectacenter.org/type-pgpractitioners.asp) and 32 practice guides for families (www.ectacenter.org/decrp/type-pgfamilies.asp). The sources in the Appendix include more than 400 practice guides. More than half of the parent and family practice guides are available in Spanish.

The majority of practice guides include practices informed by the best available evidence for which activities, routines, tip sheets, etc. are associated with desired and expectant child or family outcomes. For example, the evidence for the ECTA Center performance checklists (Dunst, 2017c) were “brought to life” by using the evidence-informed performance checklist indicators as the foundations for developing the practitioner and family practice guides (Dunst, 2017b). Field-tests of the practice guides with practitioners and family members indicated that the practice guides were judged as important sources of early childhood intervention activities, and were also judged as worth the time and effort to use with young children or their parents, or both (Dunst, 2017a, 2017b). The practice guides are based on earlier versions of intervention practices also judged as socially valid practices (e.g., Dunst, Meter, Trivette, & Masiello, 2010; Dunst, Trivette, Gorman, & Hamby, 2010).

Sources of Practice Guides

Pennsylvania Promise for Children. (2017a). Every day I learn through play: Activities to do with your infant or tod-
References


