

TELECOACHING IN EARLY INTERVENTION:
SUPPORTING PROFESSIONALS AND FAMILIES OF TODDLERS WITH OR
AT RISK FOR AUTISM SPECTRUM DISORDER

by

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ABSTRACT

Young children with or at risk for autism spectrum disorder (ASD) should receive early intervention services to achieve optimal outcomes, and recommended practices in early intervention reflect family centeredness, contextual learning in routines and natural environments, and supports for caregivers via a caregiver-implemented approach to intervention. Increasing evidence demonstrates gaps between recommended and actual practices in early intervention and in services for children with ASD, and discrepancies often exist between professionals' perceptions of their practice and their actual practice, potentially contributing to an implementation gap. Distance coaching via technology, or telecoaching, has become an increasingly viable method of supporting professionals' use of best practices in early intervention/early childhood special education (EI/ECSE). Although studies have examined the implementation of different telecoaching methods with various early childhood professionals, limited research has explored the use of telecoaching with early intervention professionals (EI professionals) in the community. The present study used a mixed-methods design to examine differences between EI professionals' reported and actual practices and to examine bug-in-ear telecoaching versus video review telecoaching to support EI professionals' use of recommended practices when working with families of toddlers with or at risk for ASD in early intervention. Results showed that EI professionals reported higher quality practices than they were observed using, and telecoaching is a promising, community-viable intervention to support EI professionals' use of recommended practices.

LIST OF ABBREVIATIONS AND SYMBOLS

α	Cronbach's alpha
d	Cohen's d : standardized-difference effect size
M	Mean
N, n	Population or group size
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
SD	Standard deviation
=	Equal to
<	Less than
%	Percentage

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CONTENTS

ABSTRACT.....	ii
LIST OF ABBREVIATIONS AND SYMBOLS	iii
ACKNOWLEDGMENTS	iv
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER 1: INTRODUCTION.....	1
Overview of the Literature.....	3
Statement of the Problem.....	5
Purpose and Scope of the Study.....	7
Theoretical framework.....	7
Research questions and hypotheses	8
Significance of the Study	9
Summary	11
CHAPTER 2: LITERATURE REVIEW	12
Recommended Practice in Early Intervention	12
Family-centered practice.....	15
Natural environments and routines	16
Caregiver-implemented intervention	17
Gap between research and practice.....	22
Caregiver-Implemented Intervention for Toddlers With or at Risk for ASD.....	24

Naturalistic developmental behavioral interventions (NDBIs).....	26
Limitations of caregiver-implemented intervention studies	28
Gap between research and practice.....	30
Reported Practices, Beliefs, and Actual Practices	32
Historical context	33
Recent research	35
Related research	39
Telecoaching to Support EI Professionals	42
Different methods of telepractice and telecoaching.....	43
Use and benefits of telepractice	45
Use and benefits of telecoaching	47
Gaps in the telecoaching literature.....	49
Theoretical Framework.....	51
Conceptual Framework.....	57
CHAPTER 3: METHOD	60
Participants.....	60
Inclusion and exclusion criteria	60
Recruitment.....	61
Levels of Participation	66
Part 1	66
Part 2	66
Part 3	66
Setting	66

Study Design.....	67
Procedures and Data Collection.....	67
Randomization	68
Baseline home visit observations.....	68
Questionnaires on typical home-visiting practices	68
Webinar.....	69
Telecoaching intervention.....	69
Bug-in-ear (synchronous) condition	69
Video review (asynchronous) condition	70
Final home visit observations	71
Social validity questionnaires	71
Interviews.....	71
Fidelity	72
Equipment and Technology	72
Telecoaching and recording devices.....	72
Shared drive	72
Telecoaching platform	73
Measures	73
Home visit observation rating scale.....	75
Fidelity of implementation.....	77
Home visit questionnaires.....	77
Social validity questionnaires	79
Telecoaching fidelity checklist	79

Procedural fidelity.....	80
Interview protocol.....	80
Data Analysis	80
Quantitative data analysis	80
Qualitative data analysis	81
CHAPTER 4: RESULTS.....	83
Reported and Actual Practices	84
EI professionals’ reported practices	85
EI professionals’ reported and actual practices	91
EI professionals’ and caregivers’ reported practices	95
Telecoaching Intervention	97
Pre-telecoaching to post-telecoaching	97
Bug-in-ear telecoaching and video review telecoaching	105
Social Validity	106
EI professionals’ and caregivers’ beliefs	107
Social validity questionnaires	109
Post-Telecoaching Interviews.....	111
Finding #1: Telecoaching improves EI professionals’ approach to home visiting.....	111
Finding #2: EI professionals’ work with the families during telecoaching made a difference in caregivers and children	112
Finding #3: Telecoaching with one target family supports EI professionals to use the practices and strategies with other families on their caseloads	113
Finding #4: Written materials from the telecoaching intervention are helpful...	114

Finding #5: Family consultation practices are the foundation on which social communication strategies sit.....	116
Finding #6: EI professionals liked whatever telecoaching method they received.....	117
Finding #7: Telecoaching is enjoyable for EI professionals.....	118
Finding #8: Despite technology glitches and challenges, the technology is mostly easy to use.....	119
Finding #9: Possible reasons for difficult recruitment of participants are fears of being watched or judged, a lack of desire to change, and the time commitment.....	121
Patterns in the findings.....	122
CHAPTER 5: DISCUSSION.....	123
Reported and Actual Practices.....	124
Research question #1.....	124
Research question #2.....	127
Telecoaching Intervention.....	129
Research question #3.....	129
Research question #4.....	134
Limitations and Future Directions.....	135
Implications for Practice and Policy.....	143
Conclusion.....	146
REFERENCES.....	147
APPENDIX A: SOCIAL COMMUNICATION MENU.....	169
APPENDIX B: IRB APPROVAL.....	170
APPENDIX C: CAREGIVER-IMPLEMENTED INTERVENTION SCALE.....	171
APPENDIX D: EISR.....	175

APPENDIX E: SAMPLE EMAIL RECAP	176
APPENDIX F: CAREGIVER-IMPLEMENTED INTERVENTION SCALE MANUAL.....	177
GENERAL RATING GUIDELINES (#1-18):.....	177
APPENDIX G: FAMILY-PROFESSIONAL INTERACTION QUESTIONNAIRE: PROFESSIONAL VERSION.....	186
APPENDIX H: FAMILY-PROFESSIONAL INTERACTION QUESTIONNAIRE: FAMILY VERSION.....	195
APPENDIX I: SOCIAL VALIDITY QUESTIONNAIRE: PROFESSIONAL VERSION.....	204
APPENDIX J: SOCIAL VALIDITY QUESTIONNAIRE: FAMILY VERSION.....	206
APPENDIX K: TELECOACHING FIDELITY CHECKLIST	208
APPENDIX L: INTERVIEW PROTOCOL.....	209
APPENDIX M: SAMPLE CONFIRMING/DISCONFIRMING TABLE	211

LIST OF TABLES

1. Alignment of DEC’s Recommended Practices With Practices in This Study	14
2. Demographics for Early Intervention Professionals	66
3. Demographics for Primary Caregivers	64
4. Demographics for Children.....	65
5. Participant-Level Reported and Actual Family Consultation Practices on the Family- Professional Interaction Questionnaire and Caregiver-Implemented Intervention Scale (1-15).....	86
6. Item-Level Reported and Actual Family Consultation Practices on the Family- Professional Interaction Questionnaire and Caregiver-Implemented Intervention Scale.....	87
7. Participant-Level Reported Social Communication Strategies on the Family-Professional Interaction Questionnaire.....	89
8. Item-Level Reported Social Communication Strategies on the Family-Professional Interaction Questionnaire.....	90
9. Participant-Level Social Communication Strategies From Pre-Telecoaching to Post- Telecoaching on the Caregiver-Implemented Intervention Scale.....	94
10. Participant-Level Family Consultation Practices From Pre-Telecoaching to Post- Telecoaching on the Caregiver-Implemented Intervention Scale (1-18).....	99
11. Item-Level Family Consultation Practices From Pre-Telecoaching to Post-Telecoaching on the Caregiver-Implemented Intervention Scale (1-18)	102
12. Item-Level Social Communication Strategies From Pre-Telecoaching to Post- Telecoaching on the Caregiver-Implemented Intervention Scale.....	104
13. Beliefs About Family Consultation Practices on the Family-Professional Interaction Questionnaire (1-15)	108
14. Telecoaching Intervention Social Validity Questionnaires	110

LIST OF FIGURES

1. The Dunning-Kruger Effect	55
2. Conceptual Framework for Reported and Actual Practices	58
3. Conceptual Framework for Telecoaching Intervention	59
4. Comparison of EI Professionals' Actual and Reported Practices in Ascending Order of Reported Practice	92
5. Comparison of EI Professionals' Practices at Pre-Telecoaching and Post-Telecoaching in Ascending Order of Pre-Telecoaching Practices, Per Condition	100

CHAPTER 1: INTRODUCTION

As the most recent prevalence rate for autism spectrum disorder (ASD) has risen to 1 in 54 children in the United States (Maenner et al., 2020), many families, educators, clinicians, and researchers have increasingly focused on early intervention for young children with ASD. Positive long-term outcomes for children with ASD have been linked to intervention occurring prior to 3 years of age (Dawson et al., 2012; Estes et al., 2015), and those diagnosed before age 3 are more likely to receive early intervention services and demonstrate improved outcomes at school age compared to those diagnosed later (Clark, Vinen, Barbaro, & Dissanayake, 2018). This positive impact of early intervention reveals a window of opportunity for optimal learning and development during the first years of life, as evidenced by early brain malleability in young children with ASD (Dawson, 2008; Dawson et al., 2012). In parallel with improvements in early detection, screening, and diagnosis of ASD, researchers have called for further examination of interventions for very young children with diagnoses, or those considered at risk due to social communication concerns (Boyd, Odom, Humphreys, & Sam, 2010; Dawson & Bernier, 2013; Zwaigenbaum et al., 2009). Thus, researchers have more recently begun to address the need for very early ASD interventions matching the developmental needs of young children, as early as infancy (Watson et al., 2018). With early detection and intervention at the forefront of current ASD research and practice, early intervention professionals (EI professionals) have a

responsibility to deliver high-quality services to best support young children with and at risk for ASD and their families.

Many young children with or at risk for ASD are eligible to receive early intervention services through Part C of the Individuals with Disabilities Education Improvement Act (IDEA; 2004). Part C of IDEA (2004) offers a system of services to children with or at risk for disabilities from birth to 3 years of age and their families (U.S. Department of Education, 2016). Per IDEA (2004) Part C guidelines, early intervention services should take place in children's natural environments, such as the family's home or the community (e.g., childcare program, grocery store, local park), and the family's home is a common setting for Part C service delivery (McWilliam, 2012). Part C services differ significantly from services delivered through Part B of IDEA (2004), which most often take place in a school setting. Educators and therapists providing Part B services in a school environment are part of a larger community of fellow professionals and administrators, where administrative oversight is often a component of their service delivery. In contrast, EI professionals under Part C of IDEA (2004) provide one-on-one services to children and families in homes, childcare programs, or other community locations, often with very little supervision from program administrators due to logistical barriers of community-based services. Even though researchers emphasize the importance of high-quality early intervention for young children with or at risk for ASD (Boyd et al., 2010; Zwaigenbaum, Bauman, Choueiri, et al., 2015) and many of these children receive services through the Part C system, research suggests that evidence-based interventions do not always translate to community practice (Dingfelder & Mandell, 2011; Locke et al., 2015; Stahmer, 2007; Stahmer, Collings, & Palinkas, 2005) and what actually occurs during Part C early intervention visits with families of children with or at risk for ASD remains a relative mystery.

Overview of the Literature

Early intervention services should be family centered and routines based, taking place in children's everyday environments (Division for Early Childhood, 2014; IDEA, 2004; Workgroup on Principles and Practices in Natural Environments, 2008). States receiving federal funds through Part C of IDEA (2004) are expected to deliver family-centered early intervention services in families' natural environments, and Part C guidelines specifically stress the need to build family capacity to support children's learning. Use of a caregiver-implemented approach to early intervention is suggested in alignment with these recommended practices, as EI professionals support caregivers' interactions and use of strategies with their children in natural routines (Friedman, Woods, & Salisbury, 2012; McWilliam, 2010b; Woods & Brown, 2011; Woods, Wilcox, Friedman, & Murch, 2011). Despite recommendations for a caregiver-implemented approach to early intervention, research on Part C early intervention services shows a disconnect between recommended practices and EI professionals' actual practices during home visits (Campbell & Sawyer, 2007; Fleming, Sawyer, & Campbell, 2011; McBride & Peterson, 1997; Peterson, Luze, Eshbaugh, Jeon, & Kantz, 2007).

In alignment with recommended practices in early intervention, many intervention models specifically designed for infants and toddlers with or at risk for ASD are also grounded in a caregiver-implemented approach to intervention (Siller & Morgan, 2018a; Zwaigenbaum, Bauman, Choueiri, et al., 2015). Much of the research on these models, however, has yet to explore the implementation of this approach in the community with Part C EI professionals. As a result, an implementation gap also exists between ASD research and community practice for EI professionals working with young children and their families (Schertz, Baker, Hurwitz, & Benner, 2011; Stahmer, 2007; Stahmer et al., 2005).

To better understand these differences between recommended and actual practices in early intervention, examination of EI professionals' perspectives on the services they provide to children and families is important. Research has shown alignment between EI professionals' beliefs and recommended practices, demonstrating a level of understanding of expected practices in the field, yet these are not always reflected in EI professionals' reports of their practices or their actual practices via observation (Bailey, Buysse, Edmondson, & Smith, 1992; Crais, Roy, & Free, 2006; Garrett, Thorp, Behrman, & Denham, 1998; McBride, Brotherson, Joanning, Whiddon, and Demmitt, 1993; McWilliam, Snyder, Harbin, Porter, & Munn, 2000). Despite alignment between beliefs and recommended practices, the fact that reported and actual practice do not always match beliefs or recommended practice highlights the implementation gap between what is recommended and what EI professionals actually do. More recent research related to EI professionals' beliefs, reported practices, and actual practices, however, is mixed (Campbell & Sawyer, 2009; Fleming et al., 2011; Salisbury, Cambray-Engstrom, & Woods, 2012; Meadan, Douglas, Kammes, & Schraml-Block, 2018). Overall, fairly limited research on EI professionals' reported and actual practices exists, particularly in relation to ASD.

With the differences between recommended and actual practice in early intervention and ASD-specific services highlighted above, an emphasis on effective ways to improve professionals' practices is critical. To address this implementation gap, supporting professionals from a distance via telecoaching has emerged as a viable means of changing professionals' practices (e.g., Krick Oborn & Johnson, 2015; Schaefer & Ottley, 2018; Wainer, Pickard, & Ingersoll, 2017). Using technology to deliver support from a distance has been shown to reduce costs and time, as well as a means to connect resources to those in traditionally rural and underserved communities (Ashburner, Vickerstaff, Beetge, & Copley, 2016; Blaiser, Behl,

Callow-Heusser, & White, 2013; Cason, 2009; Kelso, Fiechtl, Olsen, & Rule, 2009). Research in early intervention/early childhood special education (EI/ECSE) has demonstrated that the use of different methods of telecoaching (e.g., synchronous, asynchronous) can improve practices for a variety of professionals across settings (e.g., Barton, Fuller, & Schnitz, 2016; Coogle, Nagro, Regan, O'Brien, & Ottley, 2019; Krick Oborn & Johnson, 2015; Ottley, Coogle, Rahn, & Spear, 2017), yet few studies have examined the use of telecoaching with EI professionals working in the home environment (e.g., Coogle, Larson, Ottley, Root, & Bougher-Muckian, 2019; Krick Oborn & Johnson, 2015; Marturana & Woods, 2012). To my knowledge, researchers have yet to examine the use of bug-in-ear coaching with EI professionals in the home setting as a mode of in-the-moment, synchronous support. Researchers have also yet to directly compare the use of asynchronous and synchronous telecoaching methods with EI professionals. This highlights two major gaps in the early intervention literature and the need for further telecoaching research in these specific areas.

Statement of the Problem

Even though years of research have contributed to the development of recommended practices for EI professionals working with families of infants and toddlers with or at risk for ASD, determining how those practices translate to intervention implementation in the Part C system requires additional research. A paucity of recent studies related to community-based implementation of recommended early intervention practices and ASD-specific strategies, as well as a lack of current research on EI professionals' reported and actual practices, demonstrates a gap in the literature on Part C early intervention practices. The field lacks an up-to-date understanding of what EI professionals actually do during visits with families, whether this gap between research and practice remains today, or whether EI professionals' perspectives align

with their actual practices. Previous studies have shown gaps between research and practice in Part C early intervention services and in ASD-specific interventions, and limited research examines EI professionals' reported and actual home-visiting practices. Furthermore, many components of studies of caregiver-implemented intervention models for young children with or at risk for ASD differ from common aspects of community practice within the existing Part C system (e.g., types of professionals working with families, frequency and location of visits). Thus, a need exists for further research on how *regular* Part C early intervention services can be most effective in working with children with or at risk for ASD and their families. In addition, more research is essential in determining ways to effectively support this translation of research to practice in the existing Part C system as society continues to equip current and future professionals in the field. Even though telecoaching has become an increasingly viable method of supporting EI/ECSE professionals as technology continues to advance, few researchers have examined its use with Part C EI professionals working in families' homes. A paucity of research on bug-in-ear telecoaching with EI professionals in the home setting and on asynchronous versus synchronous methods of telecoaching with EI professionals also highlights the need for additional research in this area to support the overall improvement of professional development efforts in the Part C system.

The current study addressed the existing gaps in the literature, including the need (a) for more recent data on EI professionals' current practices with families of toddlers with or at risk for ASD; (b) to understand EI professionals' reports of their own practices; and (c) to examine different telecoaching methods to support EI professionals in their regular Part C home visits with families.

Purpose and Scope of the Study

The present study served as a preliminary exploration of Part C EI professionals' home-visiting practices with families of toddlers with or at risk for ASD. The two primary purposes of the study were (a) to examine the differences between EI professionals' reported and actual practices during home visits with families of children with or at risk for ASD and (b) to examine different methods of telecoaching as a means to support EI professionals' use of recommended practices. The second purpose is posed on the assumption that the findings of the research questions associated with the first purpose would show an overall need for telecoaching.

In addition to the primary purposes, the study also examined caregivers' reports of their EI professionals' practices, comparing their perspectives to their EI professionals' perspectives. By gathering views from EI professionals and caregivers via questionnaires and outside observers via video observations, the study provided a broad understanding of community-based early intervention visits for families of young children with or at risk for ASD as well as an understanding of how recommended practices in early intervention can be translated from research findings to implementation in Part C services. Additionally, this study examined EI professionals' perspectives of their home-visiting practices and their overall experiences with the telecoaching intervention following their participation in the telecoaching project, providing information on the feasibility of this telecoaching intervention in the community. A mixed-methods research design using nonparametric analyses in a small randomized group comparison addressed the purposes of this study, owing to the small number of participants in this preliminary exploration.

Theoretical framework. A combination of existing theories influenced the present study, including family systems theory (Bowen, 1966; Kerr & Bowen, 1988), ecological systems

theory (Bronfenbrenner, 1974; 1994), adult learning theory (Bransford, Brown, & Cocking, 1999; Donovan, Bransford, & Pellegrino, 1999; Knowles, 1980; 1984), and identity theory (Stryker, 1980; Stryker & Burke, 2000). Additionally, competency theory (Gross, 2005) and the Dunning-Kruger effect (Dunning, 2011; Kruger & Dunning, 1999) shaped my hypotheses related to discrepancies between EI professionals' reported and actual practices, and adult learning theory influenced my telecoaching hypotheses. The following chapter highlights the theoretical framework and its connection to the hypotheses of the present study in further detail.

Research questions and hypotheses. The present study explored the following research questions:

1. What do EI professionals report as their typical home-visiting practices with families of toddlers with or at risk for ASD and how do these compare with their actual home-visiting practices?
2. Do EI professionals' reports differ from caregivers' reports of home-visiting practices?
3. Do EI professionals' home-visiting practices differ from pre-telecoaching to post-telecoaching and how does this change differ between bug-in-ear telecoaching and video review telecoaching?
4. How do EI professionals describe their home-visiting practices and their participation in the telecoaching intervention following the intervention?

Previous research and theory informed the following hypotheses:

1. EI professionals will report using home-visiting practices with families of toddlers with or at risk for ASD that are in alignment with recommended practice.

2. EI professionals' reported home-visiting practices will differ from their actual practices with families of toddlers with or at risk for ASD, such that they use recommended practices less frequently than reported.
3. EI professionals' reports will differ from caregivers' reports of home-visiting practices, such that caregivers' reports will be in closer alignment with EI professionals' actual practice compared to EI professionals' reports.
4. EI professionals in both telecoaching conditions will show improvements in home-visiting practices from pre-telecoaching to post-telecoaching.
5. EI professionals in the bug-in-ear condition will show greater improvements in home-visiting practices compared to EI professionals in the video review condition.

No specific pre-determined hypothesis for the final research question was formed because this study used an inductive approach (Miles, Huberman, & Saldaña, 2014; Corbin & Strauss, 2008) to qualitative data analysis rather than a deductive approach. Rather, the use of the headline method consisted of determining hypotheses for the qualitative research questions throughout the data analysis process (McWilliam, 2014). These hypotheses are described in further detail in Chapter 4.

Significance of the Study

The present research contributes to the current body of literature related to early intervention and ASD in very young children because it provides an updated look into the present state of Part C services, home-visiting practices, and EI professionals' perspectives of their practices. It is also the first study, to my knowledge, to examine the use of bug-in-ear telecoaching with Part C EI professionals working in the home setting, as well as the first to compare different telecoaching methods with this group of professionals. Exploration of

coaching approaches with Part C EI professionals, particularly from a distance, is an extremely understudied area in the EI/ECSE literature, thus, this study contributes to this limited area of research. In addition to addressing the gaps in the literature, this study helps researchers and local and state personnel to further understand the gap between research and practice through its exploration of reported and actual practices and telecoaching as a means to support EI professionals' practices. It contributes to future research and advances in professional development for EI professionals, aiming for continued improvement in Part C services for young children with or at risk for ASD and their families.

Without this study, researchers could continue to make recommendations for best practices in early intervention and ASD with insufficient knowledge of whether or how EI professionals implement these recommendations in the community. Researchers might also continue to create and provide professional-development opportunities for EI professionals, but they will not have a clear understanding of EI professionals' perceptions of their own home-visiting practices. Without knowledge of whether a disconnect exists between what EI professionals think they do and what they actually do during home visits, researchers and professional-development trainers cannot appropriately tailor support to EI professionals' needs, in turn affecting service delivery for children and families. Additionally, professional-development trainings might not employ the most appropriate methods of support for EI professionals working in home and community settings. For example, coaching approaches that have been shown to be effective with early childhood educators working directly with children in a classroom setting might not translate smoothly to supporting EI professionals working with caregivers in a home setting. With limited data regarding the use of different telecoaching methods with community-based EI professionals, local and state early intervention programs

lack information to make informed decisions regarding professional-development tools that have the potential to save time, money, and resources and improve the overall quality of services for families of infants and toddlers.

Summary

This chapter presented a brief overview of the purpose and significance of this study. The following chapter provides a detailed review of the literature, as well as the guiding theories and conceptual framework that serve as a foundation for the study, further supporting the purpose and significance of this research.

CHAPTER 2: LITERATURE REVIEW

The following review of the literature highlights four main topics related to the present study: (a) recommended practices in early intervention; (b) caregiver-implemented intervention for toddlers with or at risk for autism spectrum disorder (ASD); (c) reported practices, beliefs, and actual practices; and (d) telecoaching to support early intervention professionals' (EI professionals') use of best practice. This chapter also includes an overview of the theory and conceptual framework underlying the present study.

Recommended Practice in Early Intervention

Research, legislation, professional organizations, and experts in the field have generally agreed on recommended practices in early intervention. Identification of common recommended practices allows for a deeper understanding of the implementation of best practice (or lack thereof) in community-based early intervention. As mentioned previously, Part C of the Individuals with Disabilities Education Improvement Act (IDEA) provides guidelines requiring family-centered service delivery in children's natural environments, and the law specifically stresses the significant need "to enhance the capacity of families to meet the special needs of their infants and toddlers with disabilities" (IDEA, 2004).

The Division for Early Childhood (DEC) has also developed evidence-based guidelines for professionals working with young children with or at risk for disabilities. DEC's Recommended Practices (2014) consist of 66 practices that fall under seven main categories:

assessment, environment, family, instruction, interaction, teaming and collaboration, and transition. Through its Recommended Practices, DEC (2014) highlights the importance of practices that are family centered and routines based, occur in natural environments, build caregiver capacity, and foster collaboration between families and professionals. Table 1 includes a non-exhaustive list of DEC Recommended Practices aligned with the general recommended practices in early intervention highlighted in the present study (DEC, 2014).

Part C guidelines (IDEA, 2004), DEC's Recommended Practices (2014), and ample research in early intervention contribute to the widely accepted notion that services for infants and toddlers with or at risk for disabilities should (a) be family centered, (b) take place in natural environments, and (c) support children's learning in the context of daily routines (e.g., Dunst, Bruder, & Espe-Sherwindt, 2014; Dunst, Bruder, et al., 2001; Dunst, Trivette, & Hamby, 2007; Thompson et al., 1997). In 2008, a group of early intervention experts met to determine the mission and key principles of early intervention, and even though they have backgrounds in various disciplines (e.g., special education, speech pathology, physical therapy, social work), they came to consensus that early intervention should help families promote child learning in their everyday activities and familiar contexts (Workgroup on Principles and Practices in Natural Environments, 2008). More than a decade later, family-centered and routines-based practices in children's natural environments are still widely accepted as best practice in early intervention. The literature also reflects this across speech-language pathology (e.g., Paul & Roth, 2011; Prelock & Deppe, 2015; Woods et al., 2011), occupational therapy (e.g., Hanft & Pilkington, 2000), and physical therapy (e.g., Catalino, Chiarello, Long, & Weaver, 2015), demonstrating consensus for the expectations of EI professionals regardless of differences in background or training.

Table 1

Alignment of DEC's Recommended Practices With Practices in This Study

DEC's Recommended Practices	Practices in This Study
E1. Practitioners provide services and supports in natural and inclusive environments during daily routines and activities to promote the child's access to and participation in learning experiences.	NE, RB
F1. Practitioners build trusting and respectful partnerships with the family through interactions that are sensitive and responsive to cultural, linguistic, and socio-economic diversity.	FC
F3. Practitioners are responsive to the family's concerns, priorities, and changing life circumstances.	FC
F4. Practitioners and the family work together to create outcomes or goals, develop individualized plans, and implement practices that address the family's priorities and concerns and the child's strengths and needs.	FC
F5. Practitioners support family functioning, promote family confidence and competence, and strengthen family-child relationship by acting in ways that recognize and build on family strengths and capacities.	CII, FC
F6. Practitioners engage the family in opportunities that support and strengthen parenting knowledge and skills and parenting competence and confidence in ways that are flexible, individualized, and tailored to the family's preferences.	CII, FC
F7. Practitioners work with the family to identify, access, and use formal and informal resources and supports to achieve family-identified outcomes or goals.	FC
INS1. Practitioners, with the family, identify each child's strengths, preferences, and interests to engage the child in active learning.	FC
INS2. Practitioners, with the family, identify skills to target for instruction that help a child become adaptive, competent, socially connected, and engaged and that promote learning in natural and inclusive environments.	FC, NE, RB
INS4. Practitioners plan for and provide the level of support, accommodations, and adaptations needed for the child to access, participate, and learn within and across activities and routines.	RB
INS5. Practitioners embed instruction within and across routines, activities, and environments to provide contextually relevant learning opportunities.	NE, RB
INS13. Practitioners use coaching or consultation strategies with primary caregivers or other adults to facilitate positive adult-child interactions and instruction intentionally designed to promote child learning and development.	CII, FC
TC2. Practitioners and families work together as a team to systematically and regularly exchange expertise, knowledge, and information to build team capacity and jointly solve problems, plan, and implement interventions.	CII, FC

Note. CII = Caregiver-Implemented Intervention; FC = Family Centeredness; NE = Natural Environments; RB = Routines Based.

Family-centered practice. Dunst (2002) defined *family centered* as, “a particular set of beliefs, principles, values, and practices for supporting and strengthening family capacity to enhance and promote child development and learning” (p. 139). The primary purpose of family-centered practice is to build caregivers’ capacity and self-efficacy as they foster their children’s learning (Dunst & Trivette, 2009a; IDEA, 2004; Trivette, Dunst, & Hamby, 2010). Research shows that family-centered practices in early intervention support caregivers’ self-efficacy and well-being, which in turn support caregiver-child interactions and child outcomes (Trivette et al., 2010). Research syntheses and meta-analyses have also revealed positive child and family outcomes associated with family-centered practices in early intervention, including increased caregiver competence and confidence, a more positive outlook on child behavior, and improved child functioning mediated by caregiver self-efficacy (Dunst, Trivette, & Hamby, 2006, 2008; Dunst et al., 2007). The Early Childhood Personnel Center (ECPC) recently conducted a crosswalk aligning personnel competencies across various organizations (the American Occupational Therapy Association, the American Physical Therapy Association, the American Speech-Language-Hearing Association, the Council for Exceptional Children, the Division for Early Childhood, the National Association for the Education of Young Children, and Zero to Three; Bruder et al., 2019). Personnel competencies across all organizations encompassed family-centered practice, and all organizations endorsed family-centered practice as one of four competencies, demonstrating the importance of this principle across disciplines (Bruder et al., 2019). This idea of family-centered practice, which is emphasized across the guiding bodies of early intervention (e.g., DEC, 2014; IDEA, 2004; Workgroup on Principles and Practices in Natural Environments, 2008), serves as a fundamental tenet of the present study and highlights

the importance of children's caregivers as natural teachers in their daily routines and experiences.

Natural environments and routines. For almost 30 years, legislation has required early intervention services to take place in children's natural environments to the greatest extent possible (IDEA, 1991). When children and families receive services in their natural environments, they are better able to practice and generalize supports and skills in their everyday routines throughout the week (Dunst et al., 2014; Kashinath, Woods, & Goldstein, 2006; McWilliam, 2010a; Woods et al., 2011). Research has shown EI professionals are more likely to involve caregivers in early intervention when Part C services take place in families' homes as opposed to centers (Dunst et al., 2014). Regardless of the setting, however, many EI professionals do not adequately support families in building capacity (Dunst et al., 2014). In addition, Dunst, Bruder, Trivette, and Hamby (2005) cautioned that the concept of natural environments consists of more than just settings. Rather, natural environments should incorporate contextualized, everyday learning opportunities to promote optimal child and family outcomes (Dunst, Bruder, et al., 2001; Dunst, Trivette, Humphries, Raab, & Roper, 2001; Dunst, Bruder, Trivette, & Hamby, 2006; Woods & Brown, 2011). For example, everyday activities and routines, such as meals, dressing, and getting ready for bed, serve as natural learning opportunities for young children and address child functioning across developmental domains. Intervention should be embedded within such routines to support children and families across their daily activities (Dunst, Hamby, Trivette, Raab, & Bruder, 2000; Kashinath & Yu, 2018; McWilliam, 2000; McWilliam, 2010a; Woods & Brown, 2011; Woods & Kashinath, 2007; Woods et al., 2004). Embedding intervention in daily routines has been shown to be more effective in supporting functional child outcomes compared to traditional approaches to

intervention (Hwang, Chao, & Liu, 2013). Research also shows embedded intervention can improve children's communication as well as caregivers' use of strategies to support their children's developmental growth (Brown & Woods, 2015; Kashinath et al., 2006; Woods, Kashinath, & Goldstein, 2004), highlighting the importance of routines-based intervention in natural environments for young children and their families.

Caregiver-implemented intervention. Family-centered practice, natural environments, and routines-based intervention exemplify best practice in early intervention, as both research and legislation demonstrate. These three main concepts underlay the recommended home-visiting practices examined in the present study. Friedman and colleagues (2012), however, have emphasized that the field of early intervention has broadened its scope of family-centered practice with a recent push toward supporting *caregiver-implemented intervention*. A caregiver-implemented approach to intervention is the provision of support through collaborative consultation or coaching to enhance caregivers' interactions and use of strategies with their children. A caregiver-implemented intervention approach differs from a more traditional, clinician-directed intervention approach, whereby EI professionals provide direct therapeutic services to children, often in unnatural or constructed activities. Research has shown significant differences between early intervention visits emphasizing caregiver-implemented intervention and those emphasizing clinician-directed intervention (Salisbury & Cushing, 2013). A clinician-directed intervention approach has been shown to consist of a greater emphasis on the child rather than caregiver, whereas a caregiver-implemented intervention approach has demonstrated a greater likelihood for caregivers to lead and engage in the visit (Salisbury & Cushing, 2013). Overall, a caregiver-implemented approach to intervention addresses service delivery at the family level, supporting *caregivers* to foster their children's learning and development in natural

routines (DEC, 2014; Friedman et al., 2012; McWilliam, 2012; Woods & Brown, 2011; Workgroup on Principles and Practices in Natural Environments, 2008).

Many researchers recommend EI professionals take a caregiver-implemented approach to intervention to address the key components of early intervention services and support children and families (Friedman et al., 2012; McWilliam, 2010b; Rapport, McWilliam, & Smith, 2004; Woods & Brown, 2011; Woods et al., 2004). Researchers and practitioners use synonymous terms to describe caregiver-implemented intervention, including *parent-implemented intervention* (e.g., Barton & Fettig, 2013; Wetherby et al., 2014), *parent-mediated intervention* (e.g., Green et al., 2015; Siller, Hutman, & Sigman, 2013), and *caregiver-mediated intervention* (e.g., Brian, Smith, Zwaigenbaum, Roberts, & Bryson, 2016; Kasari, Gulsrud, Wong, Kwon, & Locke, 2010). In the present study, caregiver-implemented intervention is used to encompass these terms and to include parents as well as other natural caregivers who spend a significant amount of time with the child on a regular basis.

Many researchers, particularly those in the field of ASD, use such terms (e.g., parent-implemented intervention, parent-mediated intervention, caregiver-implemented intervention, caregiver-mediated intervention) to refer to what occurs both during the visit and between visits. This term includes what the EI professional does to support the caregiver during the home visit, what the caregiver does with the child during the home visit, and what the caregiver does to support the child in daily routines when the EI professional is not present. This can create confusion around what exactly caregiver-implemented intervention means. Caregiver-implemented intervention should refer to what the *caregivers* do with their children during or between visits, whereas a caregiver-implemented approach to intervention should refer to the method of support *EI professionals* provide to caregivers during visits. For the purpose of this

study, I refer to caregiver-implemented intervention as the caregiver's actions during and between home visits, and I refer to a caregiver-implemented intervention approach as the method of support the EI professional uses when working with the family. I also use the term caregiver-implemented intervention models to refer to specific models created for young children with or at risk for ASD that use a caregiver-implemented approach to intervention.

As mentioned previously, caregiver-implemented intervention can encompass the time occurring during and between early intervention visits. Young children spend a significant amount of time with their family members, therefore learning most likely occurs during the moments spent with caregivers throughout the week as opposed to the time spent with EI professionals during home visits (Bruder, 2000; McWilliam, 2000, 2012; McWilliam & Scott, 2001). A caregiver-implemented intervention approach emphasizes equipping caregivers for the many hours that occur between visits with the EI professionals, not solely the time spent during the home visit (Bruder, 2000; McWilliam, 2000, 2012; McWilliam & Scott, 2001).

Consequently, much of the time spent during early intervention visits that use a caregiver-implemented approach should involve interactions between the EI professional and caregiver, as opposed to interactions between the EI professional and child. The ways in which professionals interact with caregivers during visits is an important aspect of early intervention, thus, examination of professional-family interactions is important in determining how they reflect family centeredness, natural environments, and routines-based intervention.

Adult learning theory (Knowles, 1980; 1984) has shaped the concept of caregiver-implemented intervention, because a caregiver-implemented approach to intervention focuses on supporting adults in addition to supporting children (McDermott, 2018). Research shows that active learner participation is an important aspect of adult learning (Brown & Woods, 2016;

Dunst & Trivette, 2009b; Trivette et al., 2009), and a caregiver-implemented intervention approach reflects this because EI professionals foster active rather than passive caregiver participation in early intervention services. Researchers and clinicians describe the actual process of supporting caregivers in a caregiver-implemented intervention approach in a variety of ways. *Coaching* is common method of working with families to support caregiver-implemented intervention (Brown, 2016; Brown & Woods, 2016; Friedman et al., 2012; Kemp & Turnbull, 2014; Rush & Shelden, 2011; Salisbury et al., 2012; Tomeny, McWilliam, & Tomeny, in press; Vismara & Rogers, 2018). Recent reviews of the coaching literature in early intervention, however, have found that coaching is broadly and inconsistently defined, causing confusion among EI professionals regarding the coaching process (Kemp & Turnbull, 2014; Lorio, Romano, Woods, & Brown, 2020; Tomeny et al., in press). For example, Tomeny and colleagues (in press) conducted a systematic review of the literature on caregiver-implemented intervention for infants and toddlers with or at risk for ASD and found inconsistencies in coaching components across the reviewed studies. Results demonstrated that certain coaching components were well-represented across studies of various intervention models, yet many studies were missing coaching components, particularly those that emphasized collaboration between EI professionals and caregivers (Tomeny et al., in press).

Other terms, such as *collaborative consultation* (McWilliam, 2010b; Salisbury, Woods, & Copeland, 2010; Woods et al., 2011) and *caregiver teaching* (Campbell & Coletti, 2013; Colyvas, Sawyer, & Campbell, 2010; Woods et al., 2004) are also used to describe the process of supporting caregivers in a caregiver-implemented approach to intervention. Despite the slight nuances among these various adult learning strategies, the core philosophy behind caregiver-implemented intervention remains the same: Caregivers serve as the primary agents of change in

their children's development during daily routines throughout the week. Thus, the present study focused on EI professionals' use of coaching and collaborative consultative practices, situated within a caregiver-implemented intervention approach, to ensure implementation of such practices as intended.

Research shows a caregiver-implemented intervention approach is an effective way to provide early intervention to children with disabilities and their families (Akamoglu & Meadan, 2018; Brown & Woods, 2015; 2016; DeVeney, Hagaman, & Bjornsen, 2017; Kashinath et al., 2006; Meadan, Angell, Stoner, & Daczewitz, 2014; Roberts & Kaiser, 2011; 2012; 2015; Romski et al., 2010; Wetherby et al., 2014). A caregiver-implemented intervention approach can improve both child and caregiver outcomes, including children's communication skills and caregivers' use of strategies with their children (Akamoglu & Meadan, 2018; Kashinath et al., 2006; Meadan et al., 2014; Roberts & Kaiser, 2012; 2015; Roberts, Kaiser, Wolfe, Bryant, & Spidalieri, 2014).

Roberts and Kaiser (2011) conducted a meta-analysis of caregiver-implemented intervention approaches focused on young children's language skills. The authors reviewed 18 studies and found that caregiver-implemented intervention approaches had significantly greater effects on children's language compared to children in control groups (Roberts & Kaiser, 2011). Results were variable, however, when comparing caregiver-implemented intervention approaches to clinician-directed intervention approaches (Roberts & Kaiser, 2011). On the other hand, a systematic literature review of caregiver-implemented and clinician-directed intervention approaches with late-talkers revealed that while caregiver-implemented and clinician-directed intervention approaches can both improve toddlers' communication skills, a caregiver-implemented approach to intervention actually resulted in better outcomes overall compared to

clinician-directed intervention (DeVaney et al., 2017). Akamoglu and Meadan (2018) also conducted a review of research specific to caregiver-implemented intervention approaches, focusing on studies incorporating naturalistic strategies to foster children's language development. The authors examined 21 studies with child participants across various disabilities, and they found all of the reviewed studies revealed positive outcomes for both children and caregivers (Akamoglu & Meadan, 2018).

Findings from these reviews demonstrate the importance of taking a caregiver-implemented approach to intervention, because it can have positive outcomes for various children and their families. Caregiver-implemented intervention is a recommended approach to early intervention (e.g., Friedman et al., 2012; McWilliam, 2010b, Woods & Brown, 2011; Woods et al., 2011) and supports the principles of family-centered practice, natural environments, and routines-based intervention. The present study examined all of the principles in combination as a reflection of best practice in early intervention.

Gap between research and practice. I describe these recommended practices and approaches to service delivery in detail to highlight the foundational principles of this study and to emphasize the gap that exists between research and practice in early intervention. Even though researchers have recommended the use of a caregiver-implemented approach to early intervention, EI professionals often face challenges with implementation in the community, as demonstrated by numerous studies showing discrepancies between recommended and actual practice in early intervention (Campbell & Sawyer, 2007; 2009; Dunst et al., 2014; Fleming et al., 2011; McBride & Peterson, 1997; Peterson et al., 2007; Sawyer & Campbell, 2017; Stremel & Campbell, 2007).

For example, Campbell and Sawyer (2007, 2009) have identified discrepancies between recommended practice and EI professionals' approaches to intervention. Campbell and Sawyer (2007) gathered video recordings of 50 EI professionals' home visits and rated the videos on whether the EI professionals' practices were participation-based (i.e., supporting children's participation and caregivers' use of strategies in natural environments) or traditional (i.e., supporting children's learning through clinician-directed, planned activities). Results showed that 70% of the home visits were categorized as traditional, whereas only 30% of the home visits were categorized as participation-based (Campbell & Sawyer, 2007). Two years later, Campbell and Sawyer (2009) conducted a similar study in conjunction with a professional-development training involving 96 EI professionals. The researcher team coded videos of the EI professionals' home visits with families following the professional-development training, and results showed that while 60% of the EI professionals used participation-based practices after the training, 40% continued to use traditional practices (Campbell & Sawyer, 2009). These findings not only demonstrate the existing gap between recommended and actual practice, but they highlight the remaining disconnect even after participating in professional-development opportunities.

EI professionals have reported concerns, barriers, and challenges to coaching caregivers via caregiver-implemented intervention (Brown, 2016; Salisbury et al., 2010). Research has shown that EI professionals across disciplines do not always receive comprehensive training in recommended early intervention practices (Bruder & Dunst, 2005; Francois, Coufal, & Subramanian, 2015). Without thorough training, EI professionals can have difficulty understanding how to incorporate key principles into their regular practice. Even though professional-development opportunities can support EI professionals' use of caregiver-implemented strategies with families, many EI professionals continue to take a traditional

approach to intervention and lack full understanding of best practice despite participation in professional development (Campbell & Sawyer, 2009; Fleming et al., 2011; Salisbury et al., 2012).

Research over the years, therefore, has demonstrated fairly consistent discrepancies between recommended and actual practice in early intervention, yet a paucity of more recent research exists to determine whether this gap remains today. In reviewing the literature, I conclude that researchers have conducted limited studies over the past 6 years examining EI professionals' use of practices to support caregiver-implemented intervention in Part C early intervention. To determine whether research has yet to be translated to community practice, reexamination of this topic in present day is necessary.

Caregiver-Implemented Intervention for Toddlers With or at Risk for ASD

To meet the needs of infants and toddlers with or at risk for ASD, many researchers have designed or adapted existing intervention models to reflect a caregiver-implemented approach to intervention (Siller & Morgan, 2018a; Zwaigenbaum, Bauman, Choueiri, et al., 2015). The National Research Council (NRC; 2001) recommends children with ASD receive at least 25 hours of developmentally appropriate services per week. However, research shows that the NRC's recommendations do not always transfer to community-based early intervention (Downs & Downs, 2010). Twenty-five hours of services per week can potentially be both costly and time-consuming for families, so Woods and Brown (2011) have highlighted how caregiver-implemented intervention can feasibly serve as a means for families to achieve these 25 hours per week, because caregivers can naturally embed strategies into their existing routines. Recent research has even shown that caregiver coaching via a caregiver-implemented intervention approach increases caregivers' ability to reflect and evaluate, building capacity for

implementation of strategies in their everyday lives (Siller et al., 2018). Such recommendations and findings demonstrate alignment with the recommended practices described in the previous section and show that the general approach to service provision for children with or at risk for ASD need not differ from best practice in general early intervention.

The past 10 years have been characterized by growing research in very early interventions for children with or at risk for ASD and their families, with a recent emphasis on large-scale randomized controlled trials (RCTs) to determine the efficacy of interventions for children under 3 years of age (e.g., Brian et al., 2017; Green et al., 2015; Kasari, Gulsrud, Paparella, Helleman, & Berry, 2015; Kasari et al., 2014; Rogers et al., 2012; Wetherby et al., 2014). RCTs and single-case studies have shown that a caregiver-implemented approach to intervention can improve communication skills (Bradshaw, Koegel, & Koegel, 2017; Brian et al., 2017; Meadan et al., 2016; Wetherby et al., 2014), joint or social engagement (Kasari et al., 2015; Koegel, Singh, Koegel, Hollingsworth, & Bradshaw, 2014; Rollins, Campbell, Hoffman, & Self, 2016; Vismara, Young, & Rogers, 2012), and adaptive skills (Wetherby et al., 2014), as well as decrease autism symptoms (Bradshaw et al., 2017) in very young children with or at risk for ASD. Caregiver-implemented intervention approaches have also been shown to improve caregivers' use of ASD-specific strategies (Bradshaw et al., 2017; Brian et al., 2017), even via telepractice (Meadan et al., 2016; Vismara et al., 2012), improve self-efficacy and well-being (Brian et al., 2017), and maintain or improve stress in caregivers of young children with or at risk for ASD (Estes et al., 2014; Turner-Brown, Hume, Boyd, & Kainz, 2016). Many reviews of the literature, including systematic reviews and meta-analyses, support such findings, concluding that despite various study limitations, a caregiver-implemented approach to intervention can be effective in supporting young children with or at risk for ASD and their families (Bradshaw,

Steiner, Gengoux, & Koegel, 2015; McConachie & Diggle, 2007; Meadan, Ostrosky, Zaghawan, & Yu, 2009; Oono, Honey, & McConachie, 2013; Siller & Morgan, 2018b).

On the other hand, results of a recent meta-analysis of caregiver-implemented intervention approaches with children between the ages of 1 and 6 years with ASD demonstrated small effects on child outcomes, but the authors pointed to the differences in methodology and approaches to caregiver-implemented intervention across studies as potential factors contributing to the small effect sizes using weighted Hedge's g (Nevill, Lecavalier, & Stratis, 2018). Nevill and colleagues (2018) reviewed 19 RCTs and examined symptom severity and socialization, communication/language, adaptive, and cognitive skills. Additionally, some researchers have recently recommended a combination of caregiver-implemented and clinician-directed intervention approaches for optimal child outcomes (Hampton & Kaiser, 2016; Landa, 2018). Regardless of whether ASD-specific interventions include a clinician-directed component, caregiver-implemented intervention has been shown to be a critical aspect of services for infants and toddlers with or at risk for ASD, supporting both the children and their families and being aligned with recommended practice in early intervention. Two questions remain, based on Nevill et al. (2018): How effective are caregiver-implemented interventions for infants and toddlers, who cannot be expected to generalize from treatment-as-usual (i.e., clinician-directed interventions), and what approach did the clinicians use in working with caregivers (e.g., expert versus collaborative consultation or coaching)? The age of the child and the consultation/coaching approach might both have impacts on the treatment effects of caregiver-implemented intervention.

Naturalistic developmental behavioral interventions (NDBIs). Studies of caregiver-implemented intervention examine the use of different intervention models, as well as the use of

various strategies within those models. Despite the specific differences among models, many share similar components or active ingredients to support young children with or at risk for ASD and their families (Schreibman et al., 2015). A number of caregiver-implemented intervention models for very young children with or at risk for ASD fall under the category of *naturalistic developmental behavioral interventions* (NDBIs; Bruinsma, Minjarez, Schreibman, & Stahmer, 2019; Schreibman et al., 2015). Such models include the Early Start Denver Model (ESDM; Dawson et al., 2010; Rogers & Dawson, 2010), Pivotal Response Training (PRT; Koegel & Koegel, 2006), Joint Attention Symbolic Play Engagement and Regulation (JASPER; Kasari, Freeman, & Paparella, 2006; Kasari et al., 2010), and Project ImPACT (Ingersoll & Dvortcsak, 2010; Ingersoll & Wainer, 2013), to name a few (Schreibman et al., 2015). Some of these models originated with a more prominent clinician-directed approach to intervention but have recently adapted to encompass a caregiver-implemented approach (e.g., Bradshaw et al., 2015; Koegel et al., 2014; Rogers et al., 2012; Steiner, Gengoux, Klin, & Chawarska, 2013). NDBIs emerged from traditional intervention approaches based in applied behavior analysis and they incorporate developmental and naturalistic principles to appropriately match the needs of infants and toddlers (Schreibman et al., 2015). According to Stadnick, Stahmer, and Brookman-Frazee (2015), “parent-mediated NDBIs are increasingly recommended as state-of-the-art treatment options for children at risk for developing ASD” (p. 2093).

Schreibman and colleagues (2015) reported 12 common components found across various NDBIs, including features of the models themselves (e.g., manualized practice, fidelity of implementation) and strategies to promote social communication, a core impairment in ASD (e.g., arranging the environment, modeling, balancing turns). By blending best practices found in the ASD literature as well as the early intervention literature, the present study stressed the

importance of contributions from both fields in supporting families of young children with or at risk for ASD. Schreibman and colleagues' (2015) core components of NDBIs influenced the creation of the social communication strategies emphasized in the present study (see Appendix A).

Limitations of caregiver-implemented intervention studies. Even though caregiver-implemented intervention is an effective approach to early intervention for children with or at risk for ASD and their families, some study limitations create barriers to implementation in the community. For example, some studies of caregiver-implemented intervention models primarily take place in a center or clinic setting as opposed to natural environments (e.g., Ingersoll & Wainer, 2013; Kasari et al., 2010; Rogers et al., 2012; Steiner et al., 2013). Such settings are more controlled and have fewer distractions than the home or community setting. Although a structured, non-distracting environment may be beneficial to child and caregiver learning, it does not reflect the Part C requirements for early intervention services to be conducted in natural environments. More important, when families are actually implementing interventions, they do so in their homes, where conditions are different. Researchers have recognized this limitation and have begun to conduct recent studies in the home and community environment to better reflect the realities of early intervention and address the importance of natural environments for generalization of skills (e.g., Baranek et al., 2015; Bradshaw et al., 2017; Brian et al., 2017; Green et al., 2015; Kasari et al., 2014; Rollins et al., 2016). In addition to setting discrepancies, some studies have provided intervention via a caregiver-implemented approach across multiple sessions per week (e.g., Baranek et al., 2015; Wetherby et al., 2014). Although Part C early intervention services vary from state to state, many children and families receive weekly, twice monthly, or even monthly visits, which significantly differs from the more frequent sessions

provided in research studies. Thus, factors such as setting or number of visits per week make translation of these interventions to community practice more difficult, because many researchers did not initially design the interventions to reflect the realities of the community.

Additionally, most studies of caregiver-implemented intervention models for young children with or at risk for ASD and their caregivers use highly trained research staff (as opposed to EI professionals through the Part C system) to implement the interventions (e.g., Brian et al., 2016; Kasari et al., 2015; Koegel et al., 2014; Rogers et al., 2012; Rollins et al., 2016; Wetherby et al., 2014). Often, research personnel receive intensive training in a specific caregiver-implemented intervention model and frequent supervision to ensure accurate implementation of practices. Intensive training and supervision can include week-long workshops paired with individualized, supervised practice (Brian et al., 2016) and ongoing weekly supervision while working with practice families and study participants (Kasari et al., 2015). Rogers and colleagues (2012) even highlighted their use of “highly experienced and credentialed therapists trained to fidelity by the authors” (p. 7). Even though such preparation demonstrates the likelihood of the research staff’s precise implementation of caregiver-implemented intervention models, it does not align with the realities of Part C early intervention, where such an intense level of training and supervision are unlikely to occur owing to limited time and resources.

Although quite limited, a few studies have focused on supporting community-based EI professionals in their use of caregiver-implemented intervention models with families of young children with ASD (e.g., Stadnick, Stahmer, & Brookman-Frazee, 2015; Vismara, Young, & Rogers, 2013; Wainer et al., 2017). Stadnick and colleagues (2015) examined EI professionals’ implementation of Project ImPACT with 30 families in a community setting. Although results were promising, the intervention took place in a hospital-affiliated center as opposed to families’

homes, and the EI professionals were master's or doctoral-level clinicians who received direct training in Project ImPACT from the model's authors (Stadnick et al., 2015). These aspects of this study demonstrate continued lack of alignment between research and community-based early intervention, despite implementation with community-based EI professionals. In addition, Vismara, Young, et al. (2013) and Wainer et al. (2017) examined the actual process of training EI professionals in caregiver-implemented intervention models, but such studies emphasized EI professionals' ability to learn the models and failed to show whether the models were effective in improving child and caregiver outcomes in the context of Part C early intervention services.

Even though studies have demonstrated that community-based EI professionals working with families of young children with ASD can be trained in evidence-based caregiver-implemented intervention models, researchers have acknowledged remaining barriers and challenges to community-based implementation of a caregiver-implemented approach to intervention (Kucharczyk, Odom, Cox, Shaw, & Sam, 2018; Pickard, Kilgore, & Ingersoll, 2016; Rieth, Haine-Schlagel, et al., 2018; Wainer, Dvortcsak, & Ingersoll, 2018). Rieth, Stahmer, and Brookman-Frazee (2018) have highlighted that translation of a caregiver-implemented intervention approach to community practice requires EI professionals to develop a clear understanding of evidence-based interventions as well as the ability to then coach families on these interventions. This multi-layered component of a caregiver-implemented approach to intervention inherently makes implementation more complex than a clinician-directed approach to intervention, particularly in community practice where conditions significantly differ from those devised in research studies.

Gap between research and practice. Similar to the gap between research and EI professionals' actual practices, a disconnect also occurs between recommended and actual

practice specific to services for children with ASD. Rieth, Stahmer, et al. (2018) stress that “best-practice interventions are not reaching the community where the majority of children and families can benefit from quality care” (p. 442). With the study limitations mentioned above, the fact that caregiver-implemented intervention approaches with this group of children does not flawlessly translate to community practice should come with little surprise. This problem is not unique to caregiver-implemented intervention either, as research has shown that community-based professionals working with children with ASD inconsistently use evidence-based interventions in their regular practice (Dingfelder & Mandell, 2011; Locke et al., 2015; Stahmer, 2007; Stahmer et al., 2005). Wainer and colleagues (2018) have highlighted studies to stress the underuse of caregiver-implemented intervention approaches in community practice (e.g., Hume, Bellini, & Pratt, 2005; Stahmer, 2007; Stahmer et al., 2005; Thomas, Ellis, McLaurin, Daniels, & Morrissey, 2007). Hume et al. (2005) and Thomas et al. (2007) surveyed caregivers of young children with ASD and found very few families actually received services aligning with caregiver-implemented intervention approaches. Similarly, Stahmer (2007) found that few EI professionals included caregiver training or caregiver-implemented intervention approaches as part of their regular practice with families of children with ASD. In addition, Schertz and colleagues (2011) conducted a systematic review of the literature comparing studies’ descriptions of early intervention practices with toddlers with or at risk for ASD and recommended practices aligning with Part C of IDEA (2004). Such recommended practices included family centeredness, natural environments, children’s active learning, and systematic and functional intervention (Schertz et al., 2011). The authors reviewed 27 studies and found only five of the studies incorporated all four of the recommended practices, and few studies used a caregiver-implemented approach to intervention (Schertz et al., 2011).

These findings demonstrate the need for further alignment between recommended practices in early intervention and intervention for young children with or at risk for ASD, specifically through the use of a caregiver-implemented intervention approach to promote family-centered practice in natural environments. Prominent researchers focusing on early intervention for children with or at risk for ASD have acknowledged the implementation gap between research and practice and have called for some critical changes in future intervention research to address this problem (Vivanti et al., 2018). Amaral and colleagues (2019), for example, emphasized the need for community-based research on intervention approaches that EI professionals can feasibly implement within the community. Because many studies related to this topic occurred during the first decade of the 2000s, the present study targeted this gap in the literature to determine whether the disconnect between recommended and actual practice remains in the Part C early intervention system and to examine methods for improving EI professionals' practices.

Reported Practices, Beliefs, and Actual Practices

To understand the existing implementation gap and present state of early intervention visits for young children with or at risk for ASD, the differences between EI professionals' self-reported practices and actual practices via observation should be examined. Many researchers have studied EI professionals' self-reported practices and beliefs using discrepancy tools to compare reports of typical and ideal practices (e.g., Bailey et al., 1992; García-Grau, Martínez-Rico, McWilliam, & Cañadas, 2019; Rantala, Uotinen, & McWilliam, 2009). Although limited, others have more recently compared EI professionals' perceptions of their practices via self-report to their actual practices via observation (e.g., Campbell & Sawyer, 2009; Fleming et al., 2011; Salisbury et al., 2012), which has its challenges in regards to data collection yet provides a

better picture of EI professionals' typical practices. While research comparing reported practices and beliefs laid the foundation for understanding EI professionals' interpretation of their own practices and recommended practices, the need for further examination of reported practices and actual practices via observation plays an important role in the progress toward use of best practice in early intervention.

Historical context. In 1986, Public Law 99-457 established requirements for early intervention services for infants and toddlers with and at risk for disabilities in the United States (IDEA, 2004). One of the most significant requirements included the need for services to be family centered, which many early intervention programs and professionals viewed as a fundamental shift, as they were accustomed to child-focused, clinician-directed intervention (Able-Boone, Sandall, Loughry, & Frederick, 1990). With this critical change in service provision, some researchers began to examine more closely the perspectives of those involved in early intervention, to gain an improved understanding of the translation of the law into practice.

In the 1990s, research on family centeredness showed alignment between EI professionals' beliefs and recommended practice, but differences existed between their beliefs and self-reported practices (Bailey et al., 1992; Garrett et al., 1998; McBride et al., 1993). Bailey and colleagues (1992) gathered information from 180 EI professionals across four states regarding their typical and ideal practices related to family centeredness as well as potential barriers to implementation if discrepancies existed. Results demonstrated a significant discrepancy between EI professionals' reports of typical and ideal family-centered practices. EI professionals identified implementation barriers primarily related to families and systems (Bailey et al., 1992). They mentioned few barriers specific to professional knowledge and skills, reflecting a lack of personal accountability for the gap between typical and ideal practices

(Bailey et al., 1992). The disconnect between EI professionals' reported beliefs and practices in the 1990s shows that even though EI professionals demonstrated an understanding of the shift toward family-centered practice in early intervention, their reports of typical practice at the time reflected a differing approach (Bailey et al., 1992; McBride et al., 1993). Studies also examined families' perspectives of their early intervention services and results showed similar findings. Even though families had generally positive reports of their early intervention services, their reports of EI professionals' practices highlighted inconsistent use of family-centered practice and a need for overall improvement in family centeredness (Mahoney, O'Sullivan, & Dennebaum, 1990; McBride et al., 1993).

As legislators passed reauthorizations of IDEA between 1986 and 2004 in alignment with experts' recommendations (e.g., Bailey et al., 1986; Bailey et al., 1998; Bruder, 2002; Dunst, 1985; Dunst, 2002; Dunst, Trivette, & Deal, 1994; McWilliam & Scott, 2001), systems and professionals continued to adapt to using family-centered practice to support infants, toddlers, and their families better. In turn, researchers further examined EI professionals' beliefs and practices to understand whether implementation of recommended practices in early intervention improved over time. Similar to findings from the 1990s, studies from the early 2000s showed that EI professionals' beliefs aligned with best practice but their self-reported practices differed (Crais et al., 2006; McWilliam et al., 2000). EI professionals continued to rate family-centered practices as ideal, even though they reported less consistent use of these practices in their typical interactions with families (Crais et al., 2006; McWilliam et al., 2000). In addition to EI professionals, families also continued to highlight discrepancies between typical and ideal practices, demonstrating that both EI professionals and families believed certain practices needed improvement (Crais et al., 2006; McWilliam et al., 2000).

One study provides a particularly illuminating perspective of adaptations to early intervention legislation and gives further insight into EI professionals' beliefs. Campbell and Halbert (2002) used open-ended survey questions to gather information from 241 EI professionals regarding early intervention services. Qualitative analysis resulted in six areas of desired change, many of which differed from best practice in early intervention, such as increasing the number and frequency of services or going back to center-based services (Campbell & Halbert, 2002). Although this study did not capture EI professionals' typical practices via self-report or observation, it provided a window into professionals' perspectives on early intervention service provision that significantly differed from best practice well after legislators passed Public Law 99-457.

Recent research. Over the past decade, researchers in the United States have less frequently studied the overarching concept of EI professionals' reported practices, beliefs, and actual practices. Much of this recent research has examined EI professionals' actual practices via observation, expanding upon previous research on reported practices and beliefs. More recent findings in this area, however, have been less clear and somewhat mixed compared to the earlier research. Campbell and Sawyer (2009) and Fleming and colleagues (2011) conducted research within a larger study of EI professionals who participated in a required professional development on participation-based practices. Participation-based practice is aligned with family-centered practice and caregiver-implemented intervention because it promotes the caregiver's active participation in home visits as the primary person interacting with the child (Campbell & Sawyer, 2007; Campbell & Sawyer, 2009). Ninety-six EI professionals video recorded two home visits between their first and second training workshops and completed assignments reflecting on

their practices, and 31 of these EI professionals participated in follow-up interviews to provide their beliefs and perspectives (Campbell & Sawyer, 2009; Fleming et al., 2011).

As mentioned previously, results showed that some of the EI professionals continued to use traditional practices while others demonstrated participation-based practices (Campbell & Sawyer, 2009). Despite whether EI professionals used participation-based or traditional practices following the training, results showed that EI professionals agreed upon their role to engage families and agreed upon the caregiver's role to teach children (Campbell & Sawyer, 2009). They agreed that working directly with children via traditional practices per families' requests was an acceptable approach to intervention and did not express agreement upon the role of the EI professionals as a teacher to caregivers (Campbell & Sawyer, 2009). Such perspectives demonstrate beliefs representative of traditional practices, even from EI professionals who use participation-based practices, showing misalignment between perspectives and best practice and misinterpretation of best practice regardless of actual practice. For example, even though EI professionals were using participation-based practices, their acceptance of working directly with the child, if that was what the family wanted, demonstrated overgeneralization of the meaning of family centeredness. On the other hand, results showed that EI professionals who used participation-based practices expressed beliefs and descriptions of practices more in line with best practice compared to EI professionals who used traditional practices (Campbell & Sawyer, 2009).

From 31 EI professionals' interviews about their early intervention practices, Fleming and colleagues (2011) found that EI professionals expressed similar beliefs and perspectives, regardless of whether they provided participation-based or traditional practices (Fleming et al., 2011). Many EI professionals expressed supporting child development in non-contextual ways

and neglected to highlight the role of caregivers as facilitators of child learning in everyday routines, demonstrating gaps in their interpretation of best practice (Fleming et al., 2011). The findings from these two articles reveal a less clear relationship among EI professionals' reported beliefs and practices and their actual practices compared to previous studies, possibly highlighting factors such as weak preservice training and the pervasive effect of professional cultures (i.e., specialized disciplines). Regardless, these studies showed a gap remains between recommended and actual practice for many EI professionals, with some using traditional practices and others using participation-based practices (Campbell & Sawyer, 2009; Fleming et al., 2011), and demonstrate the need for more effective professional development.

Other research has shown differences between EI professionals' reported and actual practices but in an unexpected manner. Salisbury and colleagues (2012) conducted a case study over 6 months comparing paired data from EI professionals' contact notes and video observations. Findings showed a discrepancy between practices described in contact notes and those implemented in intervention, such that EI professionals actually implemented best practices but did not report on them in their notes (Salisbury et al., 2012). Even though seeing that EI professionals actually implemented family-centered practices during their home visits is promising, these professionals went through a previous training, similar to those in the previously described studies (Campbell & Sawyer, 2009; Fleming et al., 2011). Additionally, this study showed that the discrepancy remained, suggesting EI professionals may not have fully valued or understood the importance of the recommended practices they used (Salisbury et al., 2012).

A more recent study examined 58 EI professionals' beliefs and practices via surveys measuring reported importance and self-reported use of caregiver coaching practices with

families (Meadan et al., 2018). Results showed that EI professionals reported frequent use and high importance of caregiver coaching practices, and, on average, EI professionals rated the importance of practices higher compared to their ratings of use of practices (Meadan et al., 2018). Such findings demonstrate EI professionals believe in best practice, which is promising, but highlight a potential remaining gap between what EI professionals believe is best practice and what they report as their typical practice during home visits (Meadan et al., 2018). Meadan and colleagues (2018) suggest that while EI professionals might have knowledge of best practices, they might lack support in implementation of these practices during home visits with families. The researchers also highlight limitations of only using self-reported data and recommend the use of methods, such as video observation or caregiver report, to provide a broader picture of EI professionals' beliefs and practices (Meadan et al., 2018).

Meadan and colleagues' (2018) findings showing that beliefs are typically more family-centered compared to self-reported practices are similar to previous research findings, revealing that EI professionals report use of practices that differ from what they view as ideal (e.g., Crais et al., 2006; McWilliam et al., 2000). Researchers have suggested that factors such as the emphasis on family-centeredness across programs, professional development, and policy could play a role in this discrepancy between beliefs and reported practices (e.g., McWilliam et al., 2000). The present study expands upon the existing literature by examining EI professionals' and caregivers' reported practices, as well as actual practices via video observation to capture practices from various lenses. Although limited, recent research has examined the use of coaching with EI professionals in the home environment as a means to help narrow the gap between reported practices and beliefs and to improve EI professionals' practices (e.g., Coogle, Larson, Ottley,

Root, & Bougher-Muckian, 2019; Friedman et al., 2012; Krick Oborn & Johnson, 2015). Thus, this study also examines coaching methods to improve the gaps described above.

Related research. Because of the relatively limited research in the United States specific to beliefs and practices in early intervention, related research in different countries and in various child- and family-centered professions should be highlighted. Outside of the United States, EI professionals have shown differences between beliefs surrounding family-centered practice and reported practice (Bjorck-Akesson & Granlund, 1995; Pereira & Serrano, 2014; Tang, Chong, Goh, Chan, & Choo, 2012). Similar to previous findings in the United States, EI professionals in countries such as Sweden and Portugal have also expressed the importance of family-centered practice, even though they reported inconsistent implementation of those practices (Bjorck-Akesson & Granlund, 1995; Pereira & Serrano, 2014). These findings highlight the differences between recommended and reported practice in early intervention outside of the United States as well. Similarly, family perspectives on typical and ideal practices in other countries have also revealed that while many families are satisfied with their early intervention services, many EI professionals need to further improve implementation of best practices (Ingber & Dromi, 2009; Thompson, 1998).

In the broader field of early childhood education, research has also explored professionals' beliefs and practices. Studies in China and Korea, for example, have shown discrepancies between early childhood educators' beliefs of best practices and their actual observed practices in the classroom (Chan, 2016; Kwon, 2004). Additionally, preservice teachers in Australia have reported preparedness to teach early literacy, despite showing limited knowledge of the content area via questionnaire responses (Meeks & Kemp, 2017). Not only do these studies examine beliefs and practices around the world, but they demonstrate evidence of

discrepancies among these concepts across the field of early childhood education, from preservice learning through employment.

In the United States and Canada, research has also shown discrepancies among early childhood educators' beliefs and practices in relation to creativity (Cho, Pemberton, & Ray, 2017), physical activity (Connelly, Champagne, & Manningham, 2018), and inclusion (Bruns & Mogharreban, 2007; Lieber et al., 1998). For example, Lieber and colleagues (1998) interviewed and observed 29 early childhood educators to examine their beliefs and practices surrounding inclusion in their classrooms. Results showed that while the educators expressed that they valued inclusive practices, their interpretation and actual implementation of these practices substantially varied (Lieber et al., 1998). Such findings demonstrate the lack of clarity that can occur when professionals translate broad ideas or concepts into practice, further evincing problems underlying the implementation gap in early intervention.

Outside of early intervention and early childhood education, researchers in healthcare fields have looked at professionals' beliefs and practices to understand gaps in implementation of family-centered care. In Canada and the United States, studies have shown that healthcare providers often note the importance of family-centered practices yet admit to inconsistent use of these practices in their everyday work with families (Bruce et al., 2002; Letourneau & Elliott, 1996; Petersen, Cohen, & Parsons, 2006). Pediatric speech pathologists in Australia have also shown differences between their beliefs and reported practices, identifying beliefs aligned with best practice but reporting use of practices that do not align (Pappas, McLeod, McAllister, & McKinnon, 2008). Such findings demonstrate that variable implementation of family-centered practice is not unique to early intervention, but rather exists across a variety of services emphasizing the importance of families through family-centered practice.

In contrast, some studies have demonstrated alignment between early childhood educators' beliefs and practices, specifically related to developmentally appropriate practice (McMullen, 1999) and social-emotional learning (Zinsser, Shewark, Denham, & Curby, 2014). Although such results hold promise for professionals' ability to reflect on their own practices, limited studies in early childhood education show this alignment and variability across professionals' use of best practice remains.

Because the present study focused on families of children with or at risk for ASD, exploration of beliefs and practices with ASD professionals was also important. Very limited research has examined these constructs in regards to professionals working with families of children with ASD (e.g., Mandak & Light, 2018; Paynter & Keen, 2015; Stahmer, 2007; Stahmer et al., 2005). Mandak and Light (2018) surveyed 211 speech-language pathologists and 99 caregivers of children with ASD and limited speech to gather information about their experiences with family-centered practice. Results showed speech-language pathologists reported that family-centered services occurred more frequently compared to caregivers (Mandak & Light, 2018). Caregivers of younger children perceived higher levels of family centeredness compared to caregivers of older children, which is unsurprising due to IDEA (2004) Part C guidelines (Mandak & Light, 2018). The authors attribute the discrepancy between caregivers' and professionals' perceptions to either caregivers' underestimates or to professionals' overestimates (Mandak & Light, 2018). The present study addressed these possible hypotheses by comparing reported practices to video observations and determining how the actual practices aligned with participants' reports of typical practice.

Other research has examined EI professionals' reports of their practices with families of children with ASD and compared them to evidence-based practices. This research further

demonstrates a lag between research recommendations and community practices because EI professionals reported using some evidence-based and some non-evidence-based practices (Paynter & Keen, 2015; Stahmer et al., 2005). Such studies lack observations of EI professionals' actual practices, and overall the ASD research community has yet to compare EI professionals' reported practices to observations of their actual practice.

Despite the aforementioned general early intervention studies highlighting professionals' beliefs and practices, fairly limited research exists in this area overall. Although much of the research has examined practices using self-report, few studies used observation to see how EI professionals' reports compare with what they actually do during home visits (e.g., Fleming et al., 2011; Salisbury et al., 2012). By capturing EI professionals' practices via live or video observation, researchers are able to discriminate between EI professionals' self-reports of practice and observed practice. The present study built upon the existing literature to capture EI professionals' and caregivers' reported practices and EI professionals' actual practices during home visits with families of toddlers with or at risk for ASD.

Telecoaching to Support EI Professionals

With advances in technology over the years, many fields related to health and education have used telecommunications as a means to help bridge the gap between research and practice. The Center for Connected Health Policy (2019) uses the term *telehealth* to describe “a collection of means or methods for enhancing health care, public health, and health education delivery and support using telecommunications technologies.” The American Speech-Language-Hearing Association (ASHA), on the other hand, uses the term *telepractice* to describe connecting clinicians and clients via remote technology to deliver assessment, intervention, or consultative services from a distance (ASHA, 2019). ASHA emphasizes that the use of technology to provide

professional support or supervision should be referred to as *telesupervision* or *distance education*, rather than telepractice, because the technology is used to directly support the professional rather than the client. Because the present study did not solely focus on speech-language pathologists and did not employ direct supervision to professionals, I use the term *telecoaching* to encompass a broader type of distance support. I define telecoaching as the provision of support and performance-based feedback to community-based professionals from a distance, using remote technology. Performance-based feedback is commonly used across coaching approaches to support early childhood professionals' implementation of specific practices in various settings (e.g., Artman-Meeker, Fettig, Barton, Penney, & Zeng, 2015; Casey & McWilliam, 2011; Hemmeter, Snyder, Kinder, & Artman, 2011; Marturana & Woods, 2012). Research has shown that coaching methods incorporating performance-based feedback are effective in improving early childhood professionals' practices, and in turn, child outcomes (e.g., Coogle, Storie, Ottley, Rahn, & Kurowski-Burt, 2019; Hemmeter, Snyder, Fox, & Algina, 2016; Romano & Woods, 2018). As such, performance-based feedback was incorporated into the telecoaching approach in the present study.

Different methods of telepractice and telecoaching. The literature on telepractice and telecoaching often describes two different methods of delivery: asynchronous and synchronous (Curran, 2006; Snodgrass et al., 2017). According to Snodgrass and colleagues (2017), asynchronous coaching with caregivers consists of the professional's viewing videos of caregiver practice and providing feedback later. This description applies to telecoaching as well, with one professional providing performance-based feedback to another professional after viewing videos of the practice. Asynchronous telepractice or telecoaching commonly uses methods such as video and email feedback (e.g., Barton, Fuller, & Schnitz, 2016; Barton et al., 2018; Coogle,

Larson, et al., 2019; Krick Oborn & Johnson, 2015; McLeod, Kim, & Resua, 2019; Wainer et al., 2017) or videoconference meetings (e.g., Meadan, Chung, Sands, & Snodgrass, 2019; Vismara, Young, Stahmer, Griffith, & Rogers, 2009; Wainer et al., 2017) to discuss practices that occurred earlier.

In contrast, Snodgrass and colleagues (2017) describe synchronous coaching as watching caregivers' practices in live time via videoconference, providing in-the-moment feedback. Again, this description applies to telecoaching as well, with one professional providing in-the-moment, performance-based feedback to another professional. Synchronous telepractice or telecoaching uses real-time videoconferencing, commonly referred to as bug-in-ear coaching, by which the professional provides immediate performance-based feedback and prompts to the recipient (e.g., caregiver or another professional) via videoconference and Bluetooth device (e.g., Coogle, Ottley, Rahn, & Storie, 2018; Coogle, Rahn, & Ottley, 2015; Ottley & Hanline, 2014; Schaeffer & Ottley, 2018; Scheeler, Morano, & Lee, 2018).

In the present study, I used similar definitions for asynchronous and synchronous telecoaching. In asynchronous telecoaching sessions, the EI professional received support and performance-based feedback from a distance *between* home visits (i.e., delayed or after the fact), and in synchronous telecoaching sessions, the EI professional received support and performance-based feedback from a distance *during* home visits (i.e., immediate or in the moment). Thus, both asynchronous and synchronous telecoaching sessions consisted of live, face-to-face videoconference meetings with the EI professional, but the difference existed in the timing relative to the home visit with the family. Chapter 3 describes the telecoaching approaches for the present study in greater detail.

Use and benefits of telepractice. The evidence continues to emerge to support the use of telepractice and telecoaching across the broader field of early intervention/early childhood special education (EI/ECSE). Whereas telepractice has been used to support *caregivers* of young children with disabilities (e.g., Behl et al., 2017; Ingersoll, Wainer, Berger, Pickard, & Bonter, 2016; Meadan et al., 2016), telecoaching has been used to support early childhood *professionals*, including early childhood educators, paraprofessionals, preservice educators, and EI professionals (e.g., Barton et al., 2016; Krick Oborn & Johnson, 2015; Ottley et al., 2017; Ottley & Hanline, 2014). Because telepractice and telecoaching employ technology to connect people from a distance, this support can be provided to those in classrooms, homes, and other community settings. Currently, the research on telepractice in EI/ECSE is more abundant compared to the research on telecoaching, but the telepractice research findings help inform the telecoaching literature, because benefits and challenges specific to providing support via technology are similar.

Researchers have examined the use of telepractice as a means of supporting caregivers of young children with a variety of disabilities. Much of the EI/ECSE literature addresses telepractice with caregivers of children who are deaf or hard of hearing (e.g., Behl et al., 2017; Blaiser et al., 2013; McCarthy, Leigh, & Arthur-Kelly, 2019) and children with ASD (e.g., Ingersoll et al., 2016; Meadan et al., 2016; Simacek, Dimian, & McComas, 2017; Vismara, McCormick, Wagner, Monlux, Nadhan, & Young, 2018; Vismara, McCormick, Young, Nadhan, & Monlux, 2013), but telepractice has also been used to promote caregiver-implemented intervention specific to language and communication (e.g., Akemoglu, Muharib, & Meadan, 2019; Snodgrass et al., 2017), as well as with caregivers of children with Prader-Willi syndrome (e.g., Zyga, Russ, & Dimitropoulos, 2018) and fragile X syndrome (e.g., McDuffie et al., 2016).

Research has demonstrated many benefits to using telepractice with caregivers, such as improvements in caregivers' use of strategies with their children (Ingersoll et al., 2016; Meadan et al., 2016; Vismara, McCormick, et al., 2013; Vismara et al., 2018), reduced drive time and mileage (Ashburner et al., 2016; Behl et al., 2017; Blaiser et al., 2013; Cason, 2009; Kelso et al., 2009), reduced costs (Ashburner et al., 2016; Blaiser et al., 2013; Cason, 2009; Kelso et al., 2009), and the ability to reach families in rural and underserved populations (Ashburner et al., 2016; Cason, 2009; Kelso et al., 2009). Studies examining the use of telepractice to support caregiver-implemented intervention have also shown improvements in target child outcomes, such as communication and social skills (Ingersoll et al., 2016; Meadan et al., 2016; Simacek et al., 2017),

When comparing telepractice to in-vivo home visits (i.e., treatment as usual), research shows that telepractice visits result in greater professional responsiveness (Behl et al., 2017), greater family engagement (Behl et al., 2017; Blaiser et al., 2013), greater caregiver satisfaction (Vismara et al., 2018), and more caregivers meeting intervention fidelity (Vismara et al., 2018). Studies have also shown no significant differences between telepractice and in-vivo home visits across a variety of child and family outcomes (Behl et al., 2017; Sutherland, Trembath, & Roberts, 2018; Vismara et al., 2018), highlighting that telepractice home visits are equally as effective as those that occur in person and a community-viable approach to supporting caregivers of young children with disabilities.

In addition to the benefits of telepractice, challenges exist, particularly difficulties with technology (Ashburner et al., 2016; Blaiser et al., 2013). Despite the natural challenges faced when working with technology, the benefits make it possible for professionals to reach families who they might otherwise not be able to meet with in person because of distance. Thus, often,

the benefits can outweigh the technology difficulties when it comes to providing services via telepractice.

Use and benefits of telecoaching. Even though the review of the literature above emphasizes telepractice as opposed to telecoaching, many of the findings related to benefits and challenges can translate to telecoaching, because it is a means of providing support and feedback to people from a distance. Similar to telepractice, telecoaching allows for professionals to reduce the amount of time, money, and resources spent on in-vivo supervision and more easily reaches professionals working in traditionally rural and underserved areas.

In addition, researchers suggest benefits to the different types of telecoaching approaches. Coogle, Ottley, Rahn, and Storie (2018) highlight that synchronous, bug-in-ear telecoaching provides professionals the opportunity to receive immediate performance-based feedback and prompting in the context of actual practice, which is considered an empirically supported approach to professional development (Schaefer & Ottley, 2018). Scheeler, Ruhl, and McAfee (2004) also conducted a review of the literature on performance-based feedback with classroom teachers and found that while other types of performance-based feedback showed promise, immediate feedback was the only type considered to be effective in changing educators' practices. On the other hand, even though asynchronous video review telecoaching lacks the immediacy and context that bug-in-ear telecoaching provides, video review telecoaching allows professionals the opportunity to reflect on their practices, which researchers suggest is another important component of improving professionals' practices (Ottley, Piasta, Coogle, Spear, & Rahn, 2019). Although both approaches have their own potential benefits to help improve professionals' practices, more research in this area is needed.

The emerging research on telecoaching shows promising results with different professionals, in different settings, and using different methods. Much of the telecoaching literature in EI/ECSE focuses on supporting early childhood educators, paraprofessionals, or preservice educators in classroom settings. Research has shown that telecoaching can be an effective method of improving early childhood educators' practices (Barton et al., 2018; Coogle, Nagro, Regan, O'Brien, & Ottley, 2019; Coogle, Ottley, Rahn, et al., 2018; Coogle, Storie, et al., 2019; D'Agostino, Douglas, & Horton, 2019; Ottley & Hanline, 2014). For example, Coogle, Nagro, and colleagues (2019) looked at the effectiveness of telecoaching on three early childhood educators' implementation of naturalistic instruction strategies in inclusive preschool classrooms using a multiple-probe single-case design. Early childhood educators received synchronous, bug-in-ear telecoaching paired with a follow-up email, video analysis, and reflection to support their use of naturalistic instruction strategies while interacting with the children in their classrooms (Coogle, Nagro, et al., 2019). Results showed that early childhood educators' use of naturalistic instruction strategies improved following participation in the telecoaching (Coogle, Nagro, et al., 2019). In addition, studies have also found telecoaching to be effective in shaping the practices of co-teachers or paraprofessionals (Ottley et al., 2017; Scheeler et al., 2018) and preservice educators (Barton et al., 2016; Coogle, Ottley, Storie, et al., 2018; Coogle et al., 2015; McLeod et al., 2019). Findings from such studies highlight the utility of telecoaching as a means to support early childhood professionals' practices in classroom settings from a distance.

Although limited compared to the number of studies examining the use of telecoaching with early childhood professionals in classroom settings, studies have also examined the use of telecoaching with EI professionals working in the home setting (e.g., Coogle, Larson, et al.,

2019; Krick Oborn & Johnson, 2015; Marturana & Woods, 2012; Meadan et al., 2019). Studies have demonstrated improvements in EI professionals' practices following telecoaching, including an increase in the amount of time EI professionals spent coaching the caregiver as opposed to working directly with the child (Marturana & Woods, 2012) and improvements in EI professionals' use of specific caregiver-coaching strategies (Krick Oborn & Johnson, 2015; Meadan et al., 2019). Coogle, Larson, and colleagues (2019), however, found more variable results upon using a multiple-probe single-case design to examine the effectiveness of telecoaching on EI professionals' practices. This study used peer-delivered telecoaching to support EI professionals, and while results demonstrated improvements in some of the EI professionals' practices, researchers were unable to conclude the telecoaching was effective owing to the variability of the data and overlapping data across conditions (Coogle, Larson, et al., 2019). Because of the limited research on the use of telecoaching with EI professionals in the home setting, further research is critical to determine whether the positive findings from telecoaching research with early childhood professionals in classroom settings translate to early intervention settings (i.e., homes, communities), whereby EI professionals typically have less structure and control over the environment. The other major difference is that classroom-based telecoaching is with the natural caregiver of the child (i.e., the teacher), whereas home-based telecoaching is with the home visitor who is working with the natural caregiver of the child (i.e., the parent).

Gaps in the telecoaching literature. As mentioned previously, the literature on telecoaching with EI professionals in home and community settings is much more limited compared to the literature on telecoaching with early childhood professionals in classroom settings. In reviewing the literature, the majority of studies with EI professionals in the home

setting examined the use of asynchronous telecoaching methods (e.g., video paired with feedback) as opposed to synchronous telecoaching methods (e.g., Coogle, Larson, et al., 2019; Krick Oborn & Johnson, 2015; Marturana & Woods, 2012; Meadan et al., 2019). Wainer and colleagues (2017) also examined the use of asynchronous telecoaching (e.g., web-based materials, videoconference meetings, video paired with feedback) with EI professionals, but while some professionals worked in the home setting, the majority worked in clinics and schools. On the other hand, Schaefer and Ottley (2018) reviewed 17 single-case studies from the literature on synchronous telecoaching via bug-in-ear with inservice and preservice educators, but these professionals worked in classroom settings. Fifteen of the studies met What Works Clearinghouse evidence standards (Kratochwill et al., 2013), and researchers concluded that bug-in-ear coaching is a feasible and empirically supported telecoaching intervention for improving educators' practices in classroom settings (Schaefer & Ottley, 2018). Such findings are encouraging when considering methods of supporting professionals from a distance, but further research is needed to determine whether such efficacy translates to EI professionals' working with caregivers in home and community settings. To my knowledge, no studies currently exist that examine the use of synchronous, bug-in-ear coaching with EI professionals in the home environment, revealing a gap in the EI/ECSE telecoaching literature.

In addition to the lack of research on synchronous telecoaching with EI professionals, very few studies have compared different methods of telecoaching in early childhood settings. Coogle, Ottley, Storie, and colleagues (2018) used a multiple-probe single-case design to examine the use of both asynchronous and synchronous telecoaching with ECSE preservice educators working with children with ASD. Three preservice educators received email feedback in the first intervention condition, followed by bug-in-ear feedback in the second intervention

condition, focusing on their use of embedded learning opportunities in the classroom (Coogle, Ottley, Storie, et al., 2018). Results showed that both telecoaching conditions improved the preservice educators' practices, but researchers could not conclude whether one telecoaching method was more effective than the other (Coogle, Ottley, Storie, et al., 2018). On a similar note, Ottley and colleagues (2019) emphasize the benefits of bug-in-ear coaching but also highlight the importance of reflective practices that can take place after implementation, a key aspect of asynchronous telecoaching. Thus, the field of EI/ECSE could benefit from research comparing asynchronous and synchronous telecoaching methods. To my knowledge, no studies currently exist that directly compare these two methods of telecoaching, specifically with EI professionals.

The present study contributes to the existing telecoaching literature by addressing the gaps highlighted above. This study compared asynchronous and synchronous telecoaching as methods of supporting EI professionals' use of specific practices when working with families of young children with or at risk for ASD in the home setting.

Theoretical Framework

The theoretical underpinnings of the present study consist of a combination of family systems theory (Bowen, 1966; Kerr & Bowen, 1988), ecological systems theory (Bronfenbrenner, 1974; 1994), adult learning theory (Bransford, Brown, & Cocking, 1999; Donovan, Bransford, & Pellegrino, 1999; Knowles, 1980; 1984), identity theory (Stryker, 1980; Stryker & Burke, 2000), competency theory (Gross, 2005), and the Dunning-Kruger effect (Dunning, 2011; Kruger & Dunning, 1999). The first three theories describe the purpose and principles behind a caregiver-implemented intervention approach, whereas identity theory, competency theory, and the Dunning-Kruger effect underlay my hypothesized outcomes related to EI professionals' reported and actual practices. Adult learning theory also serves as a

foundation for professional development and drove my hypothesized outcomes specific to telecoaching.

In family systems theory, individual family members belong to a family unit and mutually influence one another, affecting both individual and family functioning (Bowen, 1966; Kerr & Bowen, 1988). Child-centered practice and clinician-directed intervention primarily focus on the individual, whereas family-centered practice and caregiver-implemented intervention focus on the child within the context of the entire family. Research shows children with ASD can have a significant impact on family quality of life, as caregivers report increased stress (Baker-Ericzén, Brookman-Frazee, & Stahmer, 2005; Davis & Carter, 2008; Ingersoll & Hambrick, 2011), siblings show greater risk for maladjustment (Walton & Ingersoll, 2015), and families endure greater financial costs (Buescher, Cidav, Knapp, & Mandell, 2014; Lavelle et al., 2014). The theoretical underpinning of family systems theory reflected in Part C services works toward addressing the needs of the family as a whole by attending to child- and family-level outcomes.

Similarly, ecological-systems theory views the child as part of another greater unit, his or her environment (Bronfenbrenner, 1994). Bronfenbrenner (1994) highlights various levels of the environment, ranging from closest to the child (i.e., microsystem) to furthest from the child (i.e., macrosystem). Bronfenbrenner (1975) stresses the importance of caregivers' active involvement in early intervention and the positive impact it can have on children's development. In the present study, I primarily examined the child's mesosystem (i.e., interaction between EI professionals and caregivers). Ecological systems theory highlights the role of children's environments, supporting the call for caregiver-implemented intervention and reflecting the principles of early intervention in everyday routines and natural environments.

Adult learning theory also plays an important role in caregiver-implemented intervention, because caregiver-implemented intervention targets adult learners. Andragogy is the process of adult learning and highlights the ways in which adults acquire knowledge (Bransford et al., 1999; Donovan et al., 1999; Knowles, 1980, 1984). Coaching and collaboratively consulting with caregivers requires an understanding of adult learning theory, as emphasized in the literature (e.g., Friedman et al., 2012; Rush & Shelden, 2011). EI professionals should consider how adults learn to provide appropriate types and levels of support to caregivers via caregiver-implemented intervention.

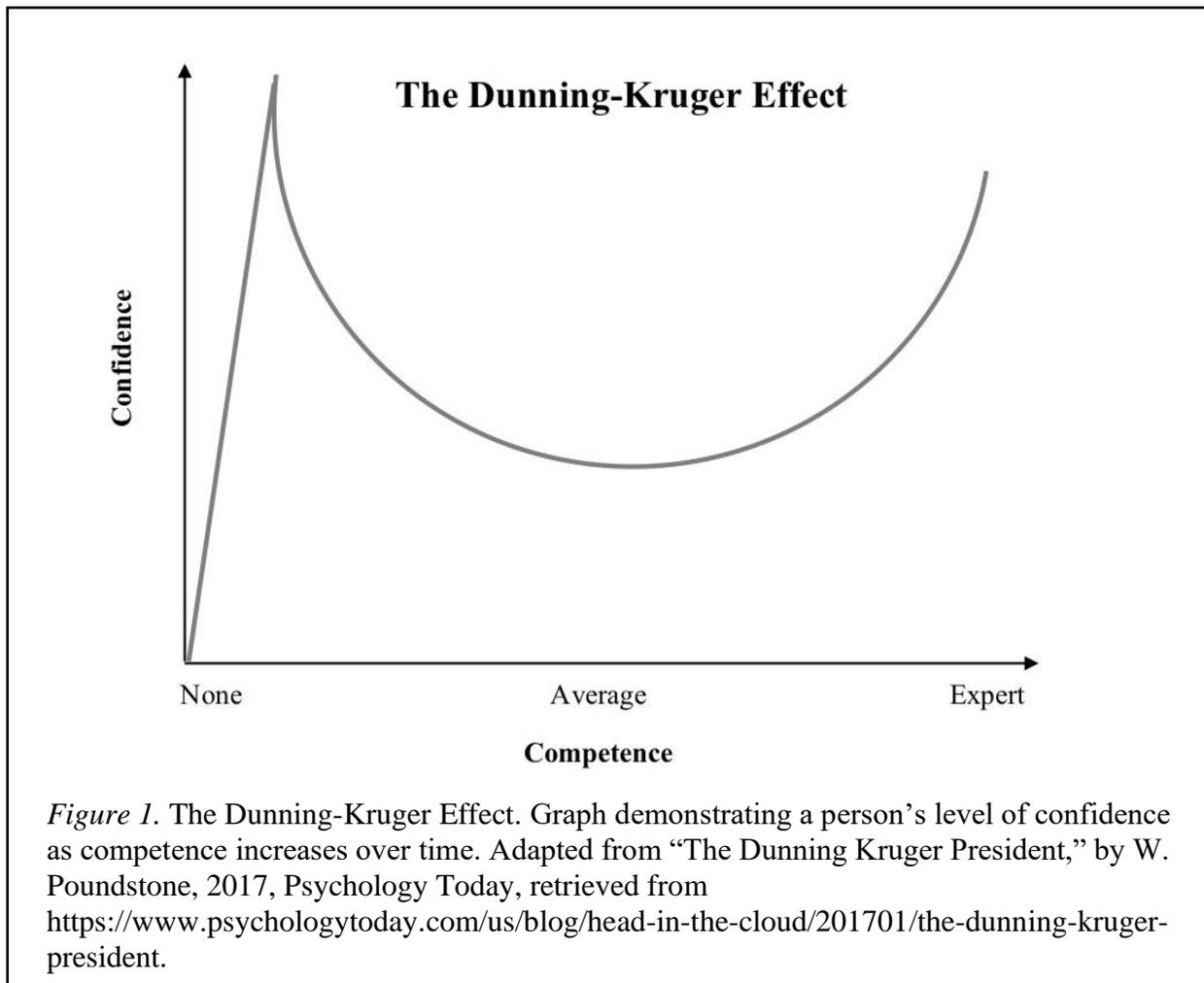
Family systems theory, ecological systems theory, and adult learning theory serve as foundational components of caregiver-implemented intervention, but identity theory supported my hypothesized outcomes related to EI professionals' reported practices. Identity theory highlights self-categorization and roles within society as important aspects of an individual's view of oneself (Stryker, 1980; Stets & Burke, 2000). According to Stryker (1968, 1980), people have different role identities within each of their roles in society, shaping their interactions and behavior. Often, EI professionals receive training in backgrounds including early childhood special education, early childhood education, speech language pathology, occupational therapy, and physical therapy, placing them in roles such as educator, clinician, or therapist. Using an identity theory framework, I predicted that many EI professionals used practices more aligned with a clinician-directed intervention approach as opposed to a caregiver-implemented intervention approach. I expected that, regardless of background, EI professionals would feel a need to teach or provide therapy directly to the child, influenced by their identities of educators or therapists. Overall, the combination of family systems theory, ecological systems theory, adult

learning theory, and identity theory shaped my understanding of best practice and the potential discrepancies between recommended and actual practice in early intervention.

Arguably some of the most important theoretical contributions to the development and hypotheses of the present study include the Dunning-Kruger effect (Dunning, 2011; Kruger & Dunning, 1999) and competency theory (Gross, 2005). The Dunning-Kruger effect highlights people's inability to recognize their own inabilities because they lack the metacognitive skills to appropriately assess their performance (Dunning, 2011; Kruger & Dunning, 1999). Dunning (2011) refers to this concept as meta-ignorance, where people remain "ignorant of the multitude of ways they demonstrate gaps in knowledge" (p. 251). Figure 1 shows the relationship between confidence and competence per the Dunning-Kruger effect. A person begins learning a new skill without confidence or competence at first, but confidence quickly escalates once the person gains a little competence. At this stage, the person's level of confidence does not match the person's level of competence. As the person's competence level increases over time, confidence decreases, despite the fact that the person has gained more knowledge than before, because the person realizes what he or she does not know. As the person's competence level continues to increase over time and the person becomes an expert at the skill, confidence increases again. At this point, the person's confidence level finally matches the competence level.

Research on the Dunning-Kruger effect shows that people who perform poorly on tasks overestimate their own abilities and demonstrate a lack of awareness of peers' competence in comparison to their own (Kruger & Dunning, 1999). This idea of overestimating one's abilities due to lack of awareness is displayed in the initial peak in Figure 1. When confidence levels are significantly greater than competence levels, people lack the ability to judge the abilities of themselves and others. Alternatively, once people have high confidence and high competence, as

demonstrated when people become experts in a particular skill, they are able to more accurately judge their own abilities and the abilities of others. The concept of high confidence paired with low competence highlighted in the Dunning-Kruger effect influenced the hypotheses of the present study, as I predicted EI professionals would report that they used recommended practices but would demonstrate lack of awareness that their actual home-visiting practices via observation were not actually in alignment with recommended practices. As Charles Darwin (1872) said, “Ignorance more frequently begets confidence than does knowledge.”



The Dunning-Kruger effect influenced the later developed competency theory (Gross, 2005), which highlights the ways in which one's lack of skill in determining competence applies to one's ability to seek out information. According to competency theory, people with low-level skills are less likely to be able to identify the need for training and more likely to gather inaccurate information during the information-seeking process (Gross, 2005). This can be particularly problematic in relation to professional growth and development and should be addressed in plans for professional development. Overall, the Dunning-Kruger effect and competency theory play a significant role in the present study, highlighting possible explanations for misalignment among reported, actual, and recommended practice in early intervention and implications for professional development.

In addition to its role in caregiver-implemented intervention, adult learning theory also serves as a key component of professional development, and, more specifically, influenced my hypothesized outcomes related to telecoaching. As mentioned previously, andragogy emphasizes knowledge acquisition among adults (Bransford et al., 1999; Donovan et al., 1999; Knowles, 1980, 1984). Similar to the ways in which EI professionals support caregivers in a caregiver-implemented intervention approach, telecoaching consists of collaborative support from one professional to another. Trivette and colleagues (2009) conducted a large-scale meta-analysis of 79 studies and defined six adult learning method characteristics, consisting of introduction of knowledge, illustration of knowledge, practice, evaluation, reflection, and mastery. Results showed that each of the six characteristics were associated with positive outcomes among adult learners, and the more characteristics trainings incorporated the more likely adult learners were to demonstrate greater positive outcomes (Trivette et al., 2009). Results also demonstrated that trainings were most effective when they emphasized active learner participation, had fewer

participants, and took place over the course of many hours and sessions (Trivette et al., 2009). Such findings related to adult learning theory shaped my overall telecoaching approach, as well as my specific telecoaching hypotheses within this study. I predicted that participants in both telecoaching conditions would demonstrate improvements in their practices from pre-telecoaching to post-telecoaching, because telecoaching for both conditions was grounded in adult learning theory. I also expected participants in the bug-in-ear (synchronous) condition to demonstrate greater improvements in their practices compared to participants in the video review (asynchronous) condition, because bug-in-ear telecoaching provided greater opportunities for active-learner participation with in-the-moment, performance-based coaching and feedback in the context of the actual situation and with errorless learning.

Conceptual Framework

The conceptual framework of the present study provides additional description of the study's constructs and the potential differences among them. Figure 2 highlights reported and actual practices in early intervention. First, it represents the two potential paths EI professionals take when working with young children with or at risk for ASD and their caregivers: a caregiver-implemented or a clinician-directed approach. In the caregiver-implemented approach to intervention, the EI professional coaches and collaboratively consults with the caregiver, and the caregiver directly supports the child, as the thick arrows situated between these three people demonstrate. In the clinician-directed approach, the thick arrow at the bottom goes straight from the EI professional to the child, leaving out the critical concept of caregiver coaching and collaborative consultation. The caregiver-implemented approach to intervention encompasses the recommended practices highlighted previously, whereas the clinician-directed approach to intervention fosters greater likelihood of misalignment with recommended practices.

Figure 2 also highlights the potential differences among EI professionals' self-reported practices, caregivers' reports of EI professionals' practices, and EI professionals' actual practices via observation. The thin arrows on the left-hand side of Figure 2 represent the question of whether EI professionals report using practices representing a caregiver-implemented approach or a clinician-directed approach to intervention. The thin arrows on the right-hand side of Figure 2 represent the question of whether caregivers report their EI professionals typically use practices that embody more of a caregiver-implemented approach or a clinician-directed approach. This study examined whether EI professionals' actual practices via observations reflected a caregiver-implemented approach or a clinician-directed approach to intervention, as represented by the dotted arrows toward the bottom of Figure 2. Ultimately, this study explored how these components differed to determine whether discrepancies existed among recommended practices, EI professionals' and caregivers' reported practices, and actual practices.

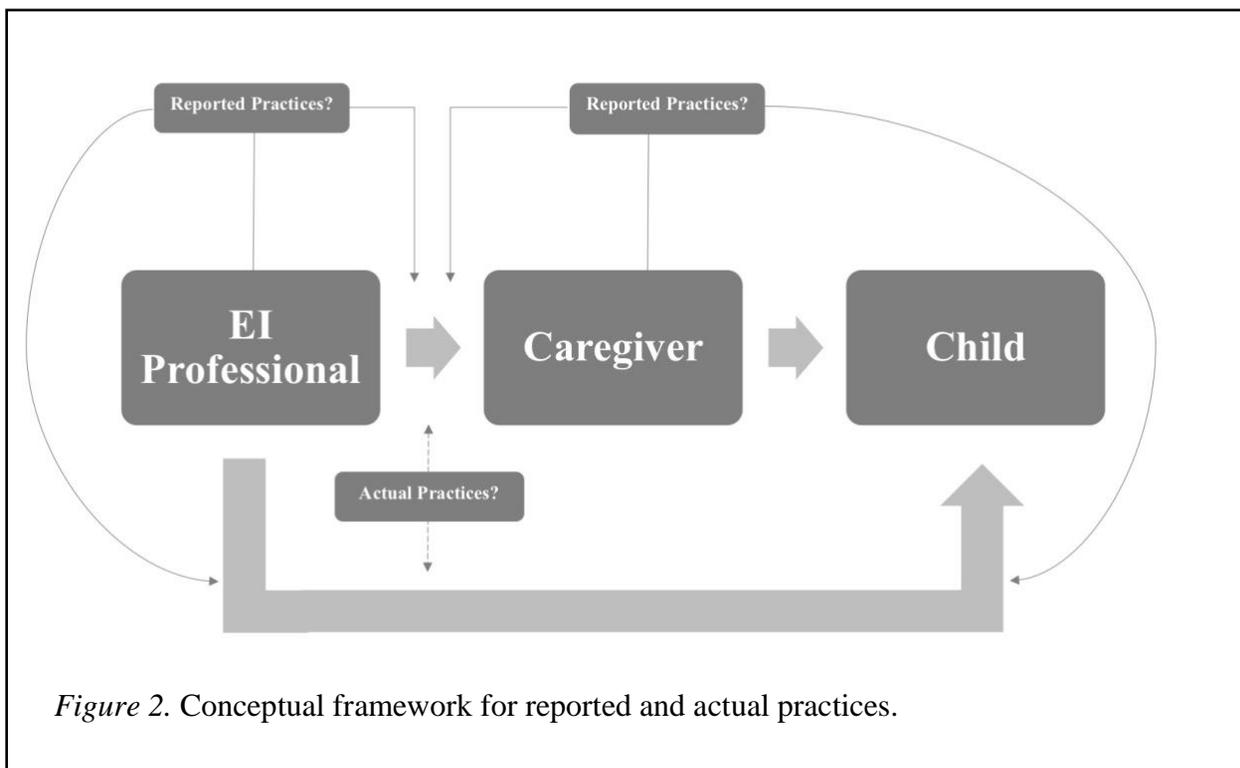


Figure 3 highlights the study's constructs and potential differences specific to the telecoaching intervention. The independent variable, performance-based telecoaching, predicts the dependent variable, EI professionals' use of quality home-visiting practices with families of toddlers with or at risk for ASD. The method of telecoaching, bug-in-ear or video review, moderates this relationship. The telecoaching intervention in this study examined these variables to determine whether the different methods of telecoaching improved EI professionals' practices.

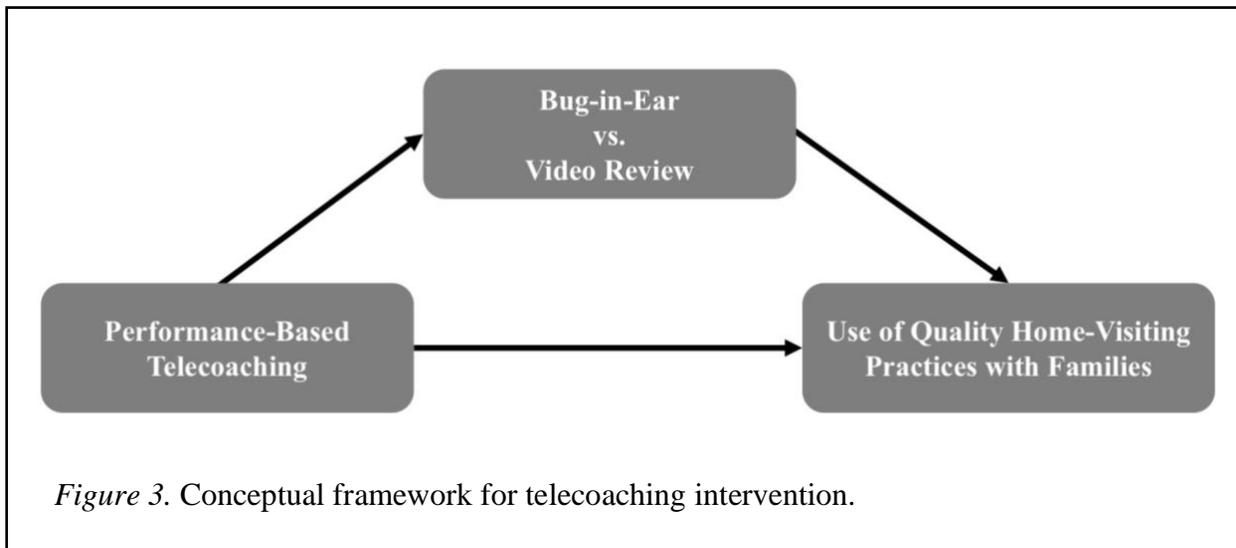


Figure 3. Conceptual framework for telecoaching intervention.

Overall, Figures 2 and 3 provide a framework of the study's constructs. The conceptual framework builds upon the literature and existing theory, further supporting the rationale and research questions for the present study.

CHAPTER 3: METHOD

Participants

Participants in this study consisted of Part C early intervention professionals (EI professionals) as well as toddlers with or at risk for autism spectrum disorder (ASD) (i.e., with social communication delays) and their families. Each participant triad consisted of an EI professional, a child with social communication delays, and the child's primary caregiver.

Inclusion and exclusion criteria. EI professionals who served families of infants and toddlers with disabilities through early intervention were recruited to participate in this study. For the purpose of this study, services must have been provided through Part C of the Individuals with Disabilities Education Improvement Act (IDEA; 2004). I targeted EI professionals who served in the role of special instructor/developmental therapist (or similar term depending upon the state), speech-language pathologist, physical therapist, or occupational therapist. Dedicated service coordinators and dedicated administrators (i.e., people who solely served in these roles) were excluded from participating in the study, because they did not provide intervention services to children and families. Participating EI professionals were required to have at least one child with or at risk for ASD on their caseloads. All participating EI professionals were also required to have access to the Internet and email.

Children and families participating in the study were already on each EI professional's caseload, receiving Part C services. Participating children either had a diagnosis of ASD or were

considered at risk for ASD because of social communication delays. Because the average age of ASD diagnosis is over the age of 4 years (Baio et al., 2018), yet EI professionals see many children before 3 years who ultimately receive a diagnosis once they age out of early intervention, a formal ASD diagnosis was not required for this study. Although the expectation was for children to be under 36 months of age because Part C services are typically provided to children until their third birthday, a few states allow families the option to continue Part C services via an extended Individualized Family Service Plan (IFSP) until the child enters kindergarten. Thus, some participants could be 3 years old at the start of the study. Each child had a primary caregiver who participated in the study as well. For the purpose of this study, a primary caregiver was defined as a person at least 19 years of age who looked after the child at least 25 hours per week. Primary caregivers could include people such as parents, grandparents, and childcare providers. Because this study examined home-visiting practices in early intervention, children's teachers or child care professionals were excluded from participation. Eligibility criteria for families included having (a) a child with social communication delays (i.e., with or at risk for ASD), (b) a child who would not age out of early intervention over the course of the study, (c) consistent attendance, (d) wireless Internet in the home and access to email, and (e) home visits conducted in English.

Recruitment. I initially planned to recruit EI professionals solely through Alabama's Part C system. I worked in collaboration with state leaders, district early intervention coordinators, and program directors to recruit interested participants through the use of a recruitment flyer, phone calls, and meetings. I emailed the recruitment flyer to EI professionals across the state using a statewide distribution list of EI professionals' email addresses. This process resulted in five participants from Alabama, thus, I expanded my recruitment efforts to

Part C systems in other states. I emailed the Part C coordinators in all states (except Hawaii and Alaska, because of mailing limitations with the telecoaching devices) and the District of Columbia, as well as personal Part C contacts in various states. This recruitment process resulted in an additional seven participants, with two from Maryland, one from North Carolina, three from Oregon, and one from Texas. A total of 12 EI professionals participated in this study. Table 2 provides demographic information for EI professionals.

Once each EI professional consented to participate, she identified a child on her caseload either with or at risk for ASD owing to social communication concerns. EI professionals provided informational flyers to qualifying families on their caseloads regarding the study. EI professionals provided information only to families who met eligibility criteria and reminded families that their participation or nonparticipation in the study would in no way influence their early intervention services. Families interested in participating then contacted me for further information about the study and formal consent. A total of 12 primary caregivers and 12 children participated in the study. In addition to the primary caregivers identified for participation in the study, other caregivers also participated in the home visits on occasion, as part of their typical Part C services. Other caregivers who participated in the home visits consisted of six fathers, one mother, and one grandmother. Table 3 provides primary caregiver demographics and Table 4 provides child demographics.

Table 2

Demographics for Early Intervention Professionals

Demographics	BIE	VR	Part 1	Total
	(<i>N</i> = 6)	(<i>N</i> = 5)	(<i>N</i> = 1)	(<i>N</i> = 12)
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Gender				
Female	6 (100)	5 (100)	1 (100)	12 (100)
Role ^a				
SI	5 (83.33)	2 (40.00)	0 (0)	7 (58.33)
SLP	3 (50.00)	2 (40.00)	1 (100)	6 (50.00)
SC	3 (50.00)	2 (40.00)	0 (0)	5 (41.67)
OT	0 (0)	1 (20.00)	0 (0)	1 (8.33)
Highest education				
Bachelor's degree	2 (33.33)	0 (0)	0 (0)	2 (16.67)
Master's degree	4 (66.67)	4 (80.00)	1 (100)	9 (75.00)
Doctoral degree	0 (0)	1 (20.00)	0 (0)	1 (8.33)
Part C employment				
Staff	4 (66.67)	2 (40.00)	1 (100)	7 (58.33)
Contract	1 (16.67)	3 (60.00)	0 (0)	4 (33.33)
Unknown	1 (16.67)	0 (0)	0 (0)	1 (8.33)
State				
Alabama	3 (50.00)	2 (40.00)	0 (0)	5 (41.67)
Maryland	1 (16.67)	1 (20.00)	0 (0)	2 (16.67)
North Carolina	0 (0)	1 (20.00)	0 (0)	1 (8.33)
Oregon	2 (33.33)	1 (20.00)	0 (0)	3 (25.00)
Texas	0 (0)	0 (0)	1 (100)	1 (8.33)
Demographics	BIE	VR	Part 1	Total
	(<i>N</i> = 6)	(<i>N</i> = 5)	(<i>N</i> = 1)	(<i>N</i> = 12)
	<i>M</i> (<i>SD</i>)			
Age in years	38.67 (12.13)	42.00 (10.27)	32.00 (-)	39.50 (10.66)
Years experience	9.67 (9.99)	14.00 (9.27)	8.00 (-)	11.33 (9.08)
Months working with family	9.17 (10.26)	3.60 (1.34)	9.00 (-)	6.83 (7.53)

Note. BIE = Bug-in-Ear; VR = Video Review; Part 1 = Part 1 Only; SI = Special Instructor; SLP = Speech-Language Pathologist; SC = Service Coordinator; OT = Occupational Therapist.

^aParticipants could serve in more than one role.

Table 3

Demographics for Primary Caregivers

Demographics	BIE (<i>N</i> = 6)	VR (<i>N</i> = 5)	Part 1 (<i>N</i> = 1)	Total (<i>N</i> = 12)
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Relation to Child				
Mother	6 (100)	4 (80.00)	1 (100)	11 (91.67)
Father	0 (0)	1 (20.00)	0 (0)	1 (8.33)
Highest education				
Less than high school diploma	1 (16.67)	1 (20.00)	0 (0)	2 (16.67)
High school degree or equivalent (GED)	2 (33.33)	1 (20.00)	0 (0)	3 (25.00)
Bachelor's degree	2 (33.33)	2 (40.00)	1 (100)	4 (33.33)
Master's degree	0 (0)	1 (20.00)	0 (0)	1 (8.33)
Doctoral degree	1 (16.67)	0 (0)	0 (0)	1 (8.33)
Household income				
Less than \$20,000	1 (16.67)	2 (40.00)	0 (0)	3 (25.00)
\$20,000 to \$39,999	1 (16.67)	1 (20.00)	0 (0)	2 (16.67)
\$40,000 to \$59,999	1 (16.67)	1 (20.00)	0 (0)	2 (16.67)
\$60,000 to \$79,999	0 (0)	0 (0)	0 (0)	0 (0)
\$80,000 to \$99,999	0 (0)	0 (0)	1 (100)	1 (8.33)
Over \$100,000	3 (50.00)	1 (20.00)	0 (0)	4 (33.33)
Demographics	BIE (<i>N</i> = 4)	VR (<i>N</i> = 5)	Part 1 (<i>N</i> = 0)	Total (<i>N</i> = 9)
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Age in years ^a	29.50 (6.86)	32.40 (5.50)	-	31.11 (5.93)

Note. BIE = Bug-in-Ear; VR = Video Review; Part 1 = Part 1 Only.

^aMissing data.

Table 4

Demographics for Children

Demographics	BIE	VR	Part 1	Total
	(<i>N</i> = 6)	(<i>N</i> = 5)	(<i>N</i> = 1)	(<i>N</i> = 12)
	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)
Gender				
Female	3 (50.00)	1 (20.00)	1 (100)	5 (41.67)
Male	3 (50.00)	4 (80.00)	0 (0)	7 (58.33)
EI services^a				
Special instruction	2 (33.33)	0 (0)	1 (100)	3 (25.00)
Speech therapy	5 (83.33)	4 (80.00)	1 (100)	10 (83.33)
Physical therapy	0 (0)	0 (0)	0 (0)	0 (0)
Occupational therapy	1 (16.67)	2 (40.00)	0 (0)	3 (25.00)
Other	1 (16.67)	1 (20.00)	0 (0)	2 (16.67)
Reason for EI^b				
ASD	4 (66.67)	0 (0)	1 (100)	5 (41.67)
Developmental delay	1 (16.67)	5 (100)	0 (0)	6 (50.00)
Speech/language delay	4 (66.67)	0 (0)	1 (100)	5 (41.67)
Participation in everyday events/activities				
Participates poorly because of difficult behavior	0 (0)	0 (0)	0 (0)	0 (0)
Participates somewhat because of some difficult behavior	3 (50.00)	0 (0)	0 (0)	3 (25.00)
Participates but with some difficulty	3 (50.00)	4 (80.00)	1 (100)	8 (66.67)
Participates well, with no problems	0 (0)	1 (20.00)	0 (0)	1 (8.33)
Demographics	BIE	VR	Part 1	Total
	(<i>N</i> = 6)	(<i>N</i> = 5)	(<i>N</i> = 1)	(<i>N</i> = 12)
	<i>M</i> (<i>SD</i>)			
Age in months	30.83 (4.83)	27.20 (4.87)	35.00 (-)	29.67 (5.03)

Note. BIE = Bug-in-Ear; VR = Video Review; Part 1 = Part 1 Only; EI = Early Intervention.

^aParticipants could receive more than one service. ^bParticipants could list more than one reason for EI.

Levels of Participation

The present study was a three-part project, and each participant triad had the option to participate in Part 1 only, Parts 1 and 2, or Parts 1, 2, and 3. A general outline of each part of the study is described in the following sections, and additional details are provided under Procedures and Data Collection. A total of 11 EI professionals chose to participate in all three parts of the study, and one EI professional chose to participate in Part 1 only, owing to time constraints.

Part 1. In Part 1 of the study, EI professionals video recorded a home visit with their identified caregiver-child dyads. EI professionals and families then each completed a brief online questionnaire related to their home visits. EI professionals received a \$10 gift card and families received a \$5 gift card as thanks for participating in Part 1.

Part 2. Part 2 of the study consisted of the telecoaching intervention. EI professionals participated in a 45-minute webinar prior to telecoaching, and participated in six video-recorded home visits with their identified families, either receiving telecoaching during their home visits or in between home visits. EI professionals recorded a final home visit with their identified caregiver-child dyads, and EI professionals and families each completed an additional brief online questionnaire related to their experience in the study. EI professionals received an additional \$20 and families received an additional \$10 as thanks for participating in Part 2.

Part 3. In Part 3 of the study, EI professionals participated in 30- to 45-minute, semi-structured, online interviews. EI professionals received an additional \$20 as thanks for participating in Part 3.

Setting

This study took place in Alabama, Maryland, North Carolina, Oregon, and Texas. According to Part C of IDEA (2004), early intervention services should occur in the child and

family's natural environments (e.g., home, community, childcare program). Home visit observations and bug-in-ear telecoaching sessions took place in each family's home. Video review telecoaching sessions and interviews took place in a location of the EI professionals' choosing (e.g., home, office). The telecoach, or the person who provided the coaching to EI professionals via telehealth, conducted all telecoaching sessions (regardless of condition) and interviews from a home or office environment. EI professionals and primary caregivers completed questionnaires electronically via the Internet in a location of their choice.

Study Design

This mixed-methods study consisted of a small number of participants ($N = 12$) and used both quantitative and qualitative methods. The quantitative portion of the study used descriptive data and non-parametric statistics with a randomized-group-comparison design. The qualitative portion of the study used a case study approach with interviews, as well as examination of the quantitative data at the participant level to determine potential patterns across this small sample. The study examined (a) differences between reported and actual practices, (b) the effectiveness of different telecoaching methods on EI professionals' practices, and (c) EI professionals' perspectives on their experience with telecoaching. See Procedures, Data Collection, and Data Analysis for more details.

Procedures and Data Collection

I obtained approval for this study from The University of Alabama's Institutional Review Board (IRB) before beginning participant recruitment (see Appendix B). Once participant triads were recruited, participation in the study took approximately 3-6 months for each triad, depending upon scheduling of home visits with the families. Once each participant triad

consented, I distributed the telecoaching devices and associated paperwork to EI professionals via mail or in person if participants were local.

Randomization. Participants who consented to Part 2 of the study were randomized to one of two intervention conditions: (1) bug-in-ear (synchronous) telecoaching or (2) video review (asynchronous) telecoaching. Participants were randomized through alternating assignment when they consented to the project (e.g., bug-in-ear, video review, bug-in-ear, video review). Six participants were randomized to the bug-in-ear condition and five participants were randomized to the video review condition.

Baseline home visit observations. EI professionals video recorded a baseline video of their regular home-visiting practices with their identified caregiver-child dyads using the telecoaching device provided by the research team. Videos lasted the duration of the home visit with the family, between about 40 and 60 minutes. EI professionals then uploaded the recording of the home visit observation from the telecoaching device to a secure, shared drive. I provided EI professionals with written instructions for video uploads, in addition to making myself available for technical support via email, text, phone call, or video chat. Once EI professionals uploaded videos to the shared drive, I watched the videos and used the Caregiver-Implemented Intervention Scale (Tomeny & McWilliam, 2018a) to examine EI professionals' use of home-visiting practices during the home visit observations.

Questionnaires on typical home-visiting practices. Following the baseline home visit observations, each EI professional received an invitation via email to complete a questionnaire specific to professionals. Each primary caregiver also received an email invitation to complete a family questionnaire (see Measures for more details on the questionnaires). The email contained an individualized link to an electronic version of the questionnaires using the platform Qualtrics.

EI professionals and caregivers completed the questionnaires after recording the home visit observations. The questionnaire took about 15-30 minutes to complete.

Webinar. EI professionals who participated in Part Two of the study took part in a 45-minute webinar on their own time, which provided an overview of the telecoaching content. The webinar was paired with three documents that were used to support the entire telecoaching process: (1) Caregiver-Implemented Intervention Scale, (2) Social Communication Menu (Tomeny & McWilliam, 2018d), and (3) Engagement, Independence, and Social Relationships (EISR; McWilliam, 2009). See Appendices A, C, and D for the documents described above. The Caregiver-Implemented Intervention Scale and the Social Communication Menu are also described in further detail under Measures.

Telecoaching intervention. The telecoaching portion of the study was designed to support EI professionals in two main areas: (1) home-visiting practices specific to family consultation and (2) ASD-specific strategies to promote social communication skills in young children. The Caregiver-Implemented Intervention Scale, the Social Communication Menu, and the EISR were used as guides throughout the telecoaching process to facilitate a focus around these main areas. I conducted all of the telecoaching sessions for the present study. I refer to myself as the telecoach for the purpose of this research.

As mentioned previously, EI professionals who participated in Part 2 were randomized to either the bug-in-ear condition or the video review condition. These two conditions are described in the following sections.

Bug-in-ear (synchronous) condition. EI professionals in the bug-in-ear condition of the study participated in six synchronous telecoaching sessions (generally two sessions per month) that occurred *during* their home visits with their identified family. The initial plan consisted of

eight weekly telecoaching sessions (across conditions) to provide consistent performance-based feedback to help the EI professional build family capacity, but, after discovering that the median frequency in Alabama was twice-monthly visits, the frequency changed to six telecoaching sessions, once every other week. This decision was made to meet the needs of the community and reflect the reality of Part C home-visiting frequency in many states.

Using the telecoaching device and Bluetooth earpiece (described under Equipment and Technology), EI professionals in the bug-in-ear condition received synchronous, in-the-moment support and performance-based feedback from the telecoach while conducting home visits with the families. The telecoach was able to connect with the EI professionals during their home visits via video and audio using the platform Zoom (described under Equipment and Technology) and provide performance-based feedback and prompts directly to the EI professionals, as needed, using the Bluetooth earpiece. Following each home visit, the telecoach and EI professionals had a follow-up phone call (generally 15-20 minutes) to debrief on the home visit. Telecoaching sessions in the bug-in-ear condition lasted for the whole home visit with the family (generally 45-60 minutes) plus the follow-up phone call, totaling between about 60 and 80 minutes. Following each bug-in-ear telecoaching session and prior to the EI professional's next home visit with the family, the telecoach sent the EI professional a brief email recap of what they highlighted in their telecoaching session. See Appendix E for a sample email.

Video review (asynchronous) condition. EI professionals in the video review condition participated in six asynchronous telecoaching sessions (generally two sessions per month) that occurred *between* their home visits with their identified family. EI professionals in this condition used the telecoaching device to video record their home visits (generally two per month) with the family and uploaded the videos to a shared drive (described under Equipment and Technology)

for the telecoach to review before the telecoaching session. EI professionals also used the telecoaching device to connect to the one-on-one telecoaching sessions, where they received after-the-fact support and performance-based feedback from the telecoach related to their previous home visit. The telecoaching sessions in this condition allowed the telecoach to meet virtually with EI professionals via video and audio and also allowed them simultaneously to review video clips of the previous home visit. Telecoaching sessions in the video review condition lasted generally 45-60 minutes. Similar to the bug-in-ear condition, the telecoach sent the EI professional a brief email recap of their telecoaching session prior to the EI professional's next home visit with the family. The email recaps for the video review condition consisted of the same components as those for the bug-in-ear condition (see Appendix E).

Final home visit observations. Upon completion of the telecoaching sessions, EI professionals across conditions recorded a final home visit with their identified caregiver-child dyads, without any telecoaching. Videos lasted the duration of the home visit with the family, between about 40 and 60 minutes, and EI professionals uploaded the recording of the home visit observation to the shared drive. Similar to the baseline home visit observations, I reviewed the videos and used the Caregiver-Implemented Intervention Scale to examine EI professionals' use of home-visiting practices after participation in telecoaching.

Social validity questionnaires. Following the final home visit observations, each EI professional and primary caregiver received an invitation via email to complete a social validity questionnaire (see Measures). The email contained an individualized link to an electronic version of the questionnaires via Qualtrics. The questionnaire took approximately 5 minutes to complete.

Interviews. EI professionals who chose to participate in Part 3 of the study participated in a semi-structured interview (generally 20-40 minutes) with the telecoach via Zoom. Interviews

provided EI professionals with the opportunity to describe their telecoaching experience in detail. EI professionals received the interview protocol via email before the interview (see Measures for more details).

Fidelity. Because this study consists of intervention implementation on multiple levels (i.e., the telecoach providing intervention to the EI professional and the EI professional providing intervention to the family), it was important to measure the quality of the EI professionals' implementation of home-visiting practices with the families and of the telecoach's implementation of the telecoaching intervention with the EI professionals. See Measures for details of fidelity of implementation and procedural fidelity.

Equipment and Technology

Telecoaching and recording devices. I provided each EI professional with a telecoaching device to video record home visit observations and participate in telecoaching sessions. Telecoaching devices consisted of an Amazon Fire HD 8, a micro SD card, a protective case/stand, and a protective carrying bag. Participants in the bug-in-ear condition also received a Bluetooth earpiece connected to their telecoaching devices for the synchronous coaching. EI professionals could either place the devices in the room or hold the devices to record the home visit observations or participate in the bug-in-ear telecoaching sessions. I provided EI professionals with detailed written instructions explaining how to record the videos.

Shared drive. EI professionals uploaded their recorded sessions to a secure, shared drive, UA Box. Sessions could be uploaded directly from the recording devices to the shared drive or from a computer using the SD card. The method using the computer and the SD card was usually more time efficient because of streaming limitations and file sizes. The research team was then

able to gain access to the videos once they were uploaded. The written instructions for video recording also included step-by-step information on how to upload the videos.

Telecoaching platform. All telecoaching sessions and interviews took place via Zoom, which is a web-based meeting platform that connects users via video and audio. I provided EI professionals with written instructions explaining how to connect to Zoom using their telecoaching devices.

Measures

This study draws on two strong bodies of intervention: The Routines-Based Model (McWilliam, 2010b) and evidence-based intervention strategies for toddlers with ASD (Schreibman et al., 2015). After investigating existing measures in the literature, I found that previously created rating scales did not fully encompass what I aimed to capture in terms of caregiver-implemented intervention and supports for very young children with or at risk for ASD. For example, the Triadic Implementation Evaluation Rating Scale (TIERS; Basu, Salisbury, & Woods, 2007) emphasizes the interactions among the EI professional, the caregiver, and the child during 10-minute segments of the home visit as opposed to examining the EI professional's practices with the caregiver during the entire home visit. The Natural Environments Rating Scale (NERS; Campbell & Sawyer, 2004) focuses more on the location and activities that occur during the visit, and the Routine and Instructional Strategy and Coding Protocol-IL (Salisbury, Cambray-Engstrom, Woods, & Friedman, 2008) examines 9 broad coaching and consultative practices (e.g., joint interaction, caregiver practice with feedback, demonstration) rather than more specific practices occurring throughout the visit (e.g., EI professional interacts with the caregiver or with the caregiver and child, rather than primarily with the child).

The Home Visit Rating Scales—Adapted and Extended to Excellence (HOVRS-A+) v2.0 (Roggman et al., 2010) includes home-visiting practices reflecting those in Part C, but this measure also encompasses general home visitation principles focusing more on caregiver involvement or engagement. The Home Visit Observation Form (HVOF; McBride & Peterson, 1996) collects detailed information regarding EI professionals’ interactions during the home visits, including information about the interaction with caregivers, the content, and the role of the EI professional. Although many of the items within these two measures are most closely aligned with the home-visiting practices I planned to examine in the present study, they are not fully aligned with family consultation to support caregiver-implemented intervention and they exclude ASD-specific strategies, a key feature of the present study.

None of the measures described above highlight all three main points of emphasis for home visits in this study: (1) family consultation to support caregiver-implemented intervention; (2) ASD-specific strategies (i.e., social communication strategies); and (3) incorporation of all areas of child development within the context of family routines. Additionally, no set of measures existed to be able to capture and compare EI professionals’ perspectives, caregivers’ perspectives, and actual practices. Because the existing measures did not fully address what I hoped to measure in the present study, I designed measures to reflect the components of the present study. I used three different quantitative measures and one qualitative protocol to gather information on EI professionals’ home-visiting practices, highlighting recommended practices related to caregiver-implemented intervention and ASD-specific supports for very young children. I address reliability and social validity following the descriptions of these measures. A construct validity study to validate our own instruments is still needed but is outside the scope of the current study. The measures in this study can also be said to have face validity and content

validity because they are drawn from the literature (e.g., McWilliam, 2010a; Schreibman et al., 2015).

Home visit observation rating scale. I used the Caregiver-Implemented Intervention Scale to score EI professionals' practices from their baseline and final home visit observations and to guide telecoaching sessions specific to home-visiting practices. This measure served as a tool for EI professionals' implementation fidelity both before and after telecoaching. I developed this measure as a result of conducting a preliminary coaching study with EI professionals in one state. The Routines-Based Home Visit Checklist (McWilliam, 2016) is used around the world and in training institutes related to the Routines-Based Model, but my experience using this checklist in the preliminary coaching study revealed a need for a simplified version because more rudimentary steps needed to be measured with EI professionals who had not yet participated in any formal training related to family consultation, collaborative consultation, or coaching (Friedman et al., 2012; Kemp & Turnbull, 2014). We modified the Routines-Based Home Visit Checklist to address these basic home-visiting practices and added the ASD-focused strategies. Thus, we developed the Caregiver-Implemented Intervention Scale to capture home-visiting practices from two domains: 1) family consultation practices to support caregiver-implemented intervention, and 2) social communication strategies to support very young children with or at risk for ASD. The rating scale consists of 18 items specific to family consultation practices to support caregiver-implemented intervention and 10 items (2 per strategy) specific to social communication strategies.

The section on family consultation practices to support caregiver-implemented intervention is divided into five sections: (a) greeting; (b) routines; (c) coaching & collaborative consultation; (d) wrap-up; and (e) rapport building. The items were influenced by the literature

on best practices in early intervention to promote caregiver-implemented intervention (e.g., Campbell & Sawyer, 2007; Friedman et al., 2012; McWilliam, 2010b; McWilliam, 2012; Rush & Shelden, 2011) and the Routines-Based Home Visit Checklist. The family consultation items are rated on a 1-4 scale to represent the EI professional's practices throughout the home visit, ranging from *not present* to *consistently present*.

The section on social communication strategies to support very young children with or at risk for ASD consists of five main strategies: (a) arranging the environment; (b) following the child's lead; (c) balancing turns; (d) prompting language and actions; and (e) expanding the child's focus. As previously mentioned, these strategies emerged from common components found across naturalistic developmental behavioral interventions (NDBIs; Schreibman et al., 2015). Each of the five strategies from the social communication section of the Caregiver-Implemented Intervention Scale is scored as 0 (*no*) or 1 (*yes*), indicating whether the EI professional mentioned the strategy in conversation with the caregiver and whether the discussion of the strategy was appropriate. In order for discussion of the strategy to be deemed appropriate, the following components must be present: (a) maintaining natural interaction (i.e., not making the interaction artificial for the family); (b) using everyday materials that would naturally be found in the family's routine; (c) using the natural places where the family would typically be during the routine; and (d) ensuring the strategy matches the social communication need being addressed (i.e., not mentioning a strategy that would be unlikely to meet the child's problem). The Social Communication Menu was used to assist with the scoring for this section of the Caregiver-Implemented Intervention Scale as well as to support the telecoaching sessions.

I examined internal consistency of the Caregiver-Implemented Intervention Scale using Cronbach's alpha (Cronbach, 1951). The internal consistency of the family consultation scores

was high ($\alpha = .94$) for items 1-15 and for items 1-18 at pre-telecoaching, and the internal consistency was high ($\alpha = .93$) for items 1-18 at post-telecoaching.

Fidelity of implementation. I served as the primary observer and scored all baseline and final home observation videos using the Caregiver-Implemented Intervention Scale to measure EI professionals' implementation of home-visiting practices before and after telecoaching. EI professionals' mean scores at pre-telecoaching and post-telecoaching are reported under Results. For reliability purposes, I trained a second observer, a speech-language pathology graduate student with a background in early intervention and ASD in very young children, on the scoring procedures using the Caregiver-Implemented Intervention Scale Manual (Tomeny & McWilliam, 2019; see Appendix F). We independently scored three training videos and discussed disagreements to reach at least 80% agreement. The second observer independently scored 30% of the baseline and final home observation videos ($n = 8$), distributed across time, condition, and participants, for inter-observer agreement (IOA). If IOA dropped below 80%, we met to discuss disagreements and build consensus on scoring. We calculated IOA as the total number of agreements divided by the total number of agreements plus disagreements, multiplied by 100. After consensus building, mean IOA for fidelity of EI professionals' home-visiting practices on the Caregiver-Implemented Intervention Scale was 80.36% (range = 60.71-96.43%). We also calculated weighted kappa for the family consultation practices ($k = .75, p < .001$) and kappa for the social communication strategies ($k = .41, p < .001$) to show the extent to which agreement exceeded chance.

Home visit questionnaires. EI professionals completed the Family-Professional Interaction Questionnaire: Professional Version (Tomeny & McWilliam, 2018c) via Qualtrics to provide information regarding their perceptions of their own home-visiting practices before

participating in the telecoaching. The first section of the Family-Professional Interaction Questionnaire: Professional Version consists of 15 items related to family consultation to support caregiver-implemented intervention. The items were designed to reflect the first 15 items on the Caregiver-Implemented Intervention Scale. These items are rated on a 1-4 scale, ranging from *rarely* to *almost always*. Items 5, 6, 7, 9, and 11 are reversed, with the response reflecting best practice being 1 (*rarely*) rather than 4 (*almost always*), to diminish the potential for social-desirability bias. Following each of the 15 items, a social validity question asks, “How important do you think this practice is?” These items are rated on a 1-4 scale, ranging from *not important* to *very important*.

The second section of the Family-Professional Interaction Questionnaire: Professional Version consists of 15 items aligned with the social communication strategies from the Caregiver-Implemented Intervention Scale and Social Communication Menu. Each of the five strategies includes three sub-questions related to the EI professionals’ level of familiarity and comfort with the strategy and how often they support caregivers to use the strategy. This section also consists of two social validity questions related to participants’ perceptions of the helpfulness and feasibility of the strategies listed in items 16-20.

The final section of the Family-Professional Interaction Questionnaire: Professional Version consists of seven demographic questions. See Appendix G.

Primary caregivers participating in this study completed the Family-Professional Interaction Questionnaire: Family Version (Tomeny & McWilliam, 2018b) via Qualtrics. This questionnaire mirrors the items from the professional version, but the items are from the caregiver’s perspective instead of the EI professional’s perspective. See Appendix H.

I examined internal consistency of the professional and family versions of the Family-Professional Interaction Questionnaire using Cronbach's alpha. The internal consistency for the Family-Professional Interaction Questionnaire: Professional Version was .86 for the 15 family consultation practices and .69 for the 15 beliefs items tied to each family consultation practice. The internal consistency was .68 for the social communication strategy familiarity items, .61 for the social communication strategy comfort items, and .47 for the social communication strategy frequency items.

The internal consistency for the Family-Professional Interaction Questionnaire: Family Version was .34 for the 15 family consultation practices and .46 for the 15 beliefs items tied to each family consultation practice. The internal consistency was .74 for the social communication strategy familiarity items, .82 for the social communication strategy comfort items, and .60 for the social communication strategy frequency items.

Social validity questionnaires. Following participation in telecoaching, EI professionals completed the Social Validity Questionnaire: Professional Version (Tomeny & McWilliam, 2018f) via Qualtrics to provide quantitative data regarding their experience participating in the telecoaching. The questionnaire consists of seven items, rated on a 1-4 scale from *strongly disagree* to *strongly agree*. See Appendix I.

Primary caregivers who participated in the telecoaching also completed the Social Validity Questionnaire: Family Version (Tomeny & McWilliam, 2018e) via Qualtrics. This measure consists of 8 items written from the caregiver's perspective, rated on a 1-4 scale from *strongly disagree* to *strongly agree*. See Appendix J.

Telecoaching fidelity checklist. Implementation of the telecoaching intervention, or procedural fidelity, was measured using the Telecoaching Fidelity Checklist (Tomeny &

McWilliam, 2018g; see Appendix K). This checklist consists of eight items scored 0 (*no*) or 1 (*yes*), measuring whether the telecoach addressed each item during the telecoaching session. The literature on adult learning theory, coaching, and collaborative consultation was used to create the items on the checklist (e.g., Bransford et al., 1999; Donovan et al., 1999; Friedman et al., 2012; Knowles, 1980, 1984; McWilliam, 2010b; Rush & Shelden, 2011).

Procedural fidelity. The average score for telecoaching fidelity across 60 telecoaching sessions was 98.90% (range = 85.71-100%). I scored all telecoaching sessions and trained a second observer, a special education graduate student, on the scoring procedures. We independently coded one training video and clarified any questions. The second observer independently scored 25% of the telecoaching sessions ($n = 15$), distributed across time, condition, and participants, for IOA. We divided the total number of agreements by the total number of agreements plus disagreements, multiplied by 100, to calculate IOA. Mean IOA for telecoaching fidelity was 99.17% (range = 87.50-100%).

Interview protocol. EI professionals who chose to participate in the final interviews received a copy of the interview questions prior to the scheduled interview. The protocol consists of 16 questions, some of which include sub-questions, addressing the topics of home-visiting practices, the coaching process, the content, and technology. See Appendix L.

Data Analysis

This mixed-methods study consisted of both quantitative and qualitative data analysis. The following sections highlight the data analysis process in further detail.

Quantitative data analysis. Descriptive analyses were used to calculate means, standard deviations, and percentages for demographic variables. Descriptive analyses were also used to calculate means and standard deviations or frequencies by participants and by items for EI

professionals' and caregivers' reported practices on the Family-Professional Interaction Questionnaire, for EI professionals' actual practices via observation on the Caregiver-Implemented Intervention Scale (pre-telecoaching and post-telecoaching), and for EI professionals' and caregivers' responses on the Social Validity Questionnaire.

Owing to the small number of participants, calculations of standardized-difference effect sizes, using Cohen's d (Cohen, 1988, 1992), were used as the primary method of analysis to examine differences in the data for participant scores and for item scores. Effect sizes were calculated to compare (a) EI professional report and caregiver report, (b) EI professional report and actual practice, (c) caregiver report and actual practice, (d) EI professionals' practices from pre-telecoaching to post-telecoaching, and (e) bug-in-ear and video review conditions. Most credence was given to high standardized differences of 0.80 and above, using the common reference points of 0.20 for small, 0.50 for medium, and 0.80 for large effect sizes (Cohen, 1988, 1992). Non-parametric statistics (i.e., Wilcoxon signed-rank tests and Mann-Whitney U tests) were also used for confirming evidence to examine group differences. IBM Statistical Package for Social Sciences (SPSS) Statistics Version 25.0 (IBM Corp., 2017) and Version 26.0 (IBM Corp., 2019) were used to conduct quantitative data analysis.

Qualitative data analysis. I used the headline method (McWilliam, 2014) to analyze the qualitative interview data related to EI professionals' experiences participating in the telecoaching project. According to McWilliam (2014), "the headline method provides directional findings or hypotheses as alternatives to categorical findings or themes." The headline method involves coding the data, creating categories, and drawing conclusions (i.e., determining headlines or hypotheses; McWilliam, 2014). Once findings are proposed, the researcher reexamines the data and creates confirming and disconfirming tables to determine whether the

data support the findings, editing the findings as needed (McWilliam, 2014). See Appendix M for an example of confirming and disconfirming tables. As McWilliam (2014) highlights, qualitative researchers also refer to this process of going back to the data and editing the headlines as recursivity (LeCompte & Preissle, 1994) or constant comparison (Glaser & Strauss, 2017). To determine inter-reader agreement, McWilliam served as the second reader and reviewed confirming and disconfirming tables. We determined whether we agreed or disagreed on the placement of examples in each column, and there were no disagreements. Overall, the process of using the headline method allowed me to determine patterns across the interview data and state qualitative findings (McWilliam, 2014).

CHAPTER 4:

RESULTS

The results of this study are presented in four main sections: (a) reported and actual practices (via observation); (b) telecoaching intervention; (c) social validity; and (d) post-telecoaching interviews. Results related to the study's research questions and hypotheses are presented below.

For data analysis purposes, home-visiting practices were divided into two main sections: (a) family consultation practices; and (b) social communication strategies. The layouts of the Family-Professional Interaction Questionnaire and the Caregiver-Implemented Intervention Scale also reflected this division. While family consultation practices should consistently be present across families and visits to support a caregiver-implemented approach to intervention, the social communication strategies take on a slightly different role in intervention. The social communication strategies should serve as a guide or toolbox for early intervention professionals (EI professionals) and caregivers, providing them with knowledge and the ability to choose appropriate strategies to support the child in relevant moments. EI professionals and caregivers would not be expected to address all five social communication strategies during every home visit; this could actually be considered inappropriate if the strategies do not fit in the context of the targeted outcome(s) during a particular visit. Thus, when analyzing the reported social communication strategy data for EI professionals and caregivers, an emphasis was placed on overall familiarity, comfort, and frequency, rather than just frequency alone. When analyzing the social communication strategy data representing EI professionals' actual practices via video

observations (pre-telecoaching and post-telecoaching), the areas of focus included whether the EI professional mentioned the strategy and whether the mention was appropriate. Overall, this emphasized whether mention matched appropriateness, demonstrating an understanding of how the strategy should be used. When examining EI professionals' use of social communication strategies, this understanding of *how* the strategies should be used holds much greater importance than the overall frequency of use.

In addition, the majority of analyses were conducted with individual participants' scores (i.e., "participant level") and with item scores across participants (i.e., "item level") to provide a comprehensive picture of the differences among the constructs examined. Participant-level analyses involved examination of differences across items for each participant or participant dyad. For example, how did Participant A's family consultation practices on the Caregiver-Implemented Intervention Scale change from pre-telecoaching to post-telecoaching? Item-level analyses, on the other hand, involved examination of differences across participants for each item on the measures used. For example, was there a difference in EI professionals' use of the family consultation practice, focusing on the caregiver's priorities, on the Caregiver-Implemented Intervention Scale from pre-telecoaching to post-telecoaching? This approach to data analysis allows a close examination of cases, which is important given the small number of participants in this study, and also provides an understanding of how practices and strategies are understood and implemented on a global level.

Reported and Actual Practices

EI professionals' reports of their practices on the Family-Professional Interaction Questionnaire: Professional Version, caregivers' reports of the EI professionals' practices on the Family-Professional Interaction Questionnaire: Family Version, and EI professionals' actual

practices via observational scores on the Caregiver-Implemented Intervention Scale (i.e., pre-telecoaching) were examined to address the first and second research questions:

1. What do EI professionals report as their typical home-visiting practices with families of toddlers with or at risk for autism spectrum disorder (ASD) and how do these compare with their actual home-visiting practices?
2. Do EI professionals' reports differ from caregivers' reports of home-visiting practices?

EI professionals' reported practices. The first hypothesis was that EI professionals would report using home-visiting practices with families of toddlers with or at risk for ASD that were in alignment with recommended practice. Table 5 shows, on average, EI professionals' reported family consultation practices were relatively high ($M = 3.11$, $SD = 0.48$). On the 4-point rating scale, the average score of 3.11 most closely matched the descriptor (3) *most of the time*.

As seen in Table 6, EI professionals reported frequent use of 12 of the 15 recommended family consultation practices, with average scores for these items ranging from 2.75 to 3.92, reflecting closest alignment with the descriptors (3) *most of the time* or (4) *almost always*. They reported using three of the family consultation practices less frequently, with average scores ranging from 1.83 to 2.42, matching the descriptor (2) *some of the time*. These three practices were allowing caregivers to demonstrate first ($M = 1.83$, $SD = 0.72$), checking in on the feasibility of caregivers' ability to carry out agreed upon strategies ($M = 2.42$, $SD = 1.00$), and determining a focus for the next visit ($M = 2.42$, $SD = 1.00$).

Table 5

Participant-Level Reported and Actual Family Consultation Practices on the Family-Professional Interaction Questionnaire and Caregiver-Implemented Intervention Scale (1-15)

Participants	EIP Report	Caregiver Report	Actual Practice	EIP Report	EIP Report	Caregiver Report
	<i>M (SD)</i>	<i>M (SD)</i>		vs. Caregiver Report	vs. Actual Practice	vs. Actual Practice
			<i>M (SD)</i>	<i>d</i>	<i>d</i>	<i>d</i>
A	3.67 (0.72)	3.00 (1.36)	2.67 (1.29)	0.62	0.96	0.25
B	2.33 (0.90)	2.86 (1.46) ^a	1.20 (0.78)	0.44	1.34	1.42
C	3.33 (0.90)	3.07 (1.16)	1.93 (1.16)	0.25	1.35	0.98
D	3.20 (0.94)	3.00 (1.31)	2.00 (0.85)	0.18	1.34	0.91
E	3.20 (1.01)	3.33 (1.11)	2.20 (1.08)	0.12	0.96	1.03
F	3.13 (0.83)	2.87 (1.06)	3.13 (1.19)	0.27	0	0.23
G	3.87 (0.52)	3.27 (1.28)	4.00 (0)	0.61	0.35	0.81
H	3.53 (0.64)	3.40 (1.12)	3.20 (1.15)	0.14	0.35	0.18
I	2.40 (0.83)	3.00 (1.25)	3.79 (0.43) ^b	0.57	2.10	0.85
J	2.73 (1.10)	2.73 (0.96)	1.40 (0.83)	0	1.36	1.48
K	2.73 (0.80)	2.53 (1.25)	2.67 (1.40)	0.19	0.05	0.11
L	3.13 (0.83)	3.07 (1.39)	2.40 (1.06)	0.05	0.77	0.54
Total	3.11 (0.48)	3.01 (0.25)	2.55 (0.87)	0.26	0.80	0.72

Note. EIP = Early Intervention Professional.

^aMissing data, $k = 14$. ^bOne item scored N/A, $k = 14$.

Table 6

Item-Level Reported and Actual Family Consultation Practices on the Family-Professional Interaction Questionnaire and Caregiver-Implemented Intervention Scale

Family Consultation Practices	EIP Report (<i>N</i> = 12)	Caregiver Report (<i>N</i> = 12)	Actual Practice (<i>N</i> = 12)	EIP Report vs. Caregiver Report	EIP Report vs. Actual Practice	Caregiver Report vs. Actual Practice
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>d</i>	<i>d</i>	<i>d</i>
1. Updates	3.92 (0.29)	3.92 (0.29)	4.00 (0)	0	0.39	0.39
2. Previous Visit's Plan	3.25 (0.62)	3.58 (0.90)	1.42 (1.00)	0.43	2.20**	2.27**
3. Natural Activities	3.58 (0.67)	3.67 (0.65)	2.83 (1.27)	0.14	0.74	0.83
4. Context of Routines	3.17 (1.03)	3.58 (0.67)	2.75 (1.22)	0.47	0.37	0.84
5. Materials	3.42 (0.90)	2.33 (1.37)	3.42 (1.17)	0.94*	0	0.86*
6. Priorities	3.17 (1.12)	1.50 (0.80)	2.67 (1.30)	1.72**	0.41	1.08*
7. Interactions	3.33 (0.65)	1.83 (0.84)	2.83 (1.03)	2.00**	0.58*	1.06*
8. Gathering Information	3.42 (0.67)	4.00 (0)	2.67 (1.16)	1.22*	0.79	1.62*
9. Demonstration	1.83 (0.72)	1.67 (0.99)	2.36 (1.21) _a	0.18	0.53	0.62
10. Ideas, Opinions, Strategies, Solutions	3.25 (0.87)	3.83 (0.58)	2.08 (1.24)	0.78*	1.09*	1.81**
11. Feasibility	2.42 (1.00)	1.33 (0.49)	1.58 (1.00)	1.38*	0.84	0.32
12. Appropriate Amount of Help	2.75 (0.75)	3.55 (0.52) _b	2.33 (0.99)	1.24*	0.48	1.54*
13. Review	3.42 (0.79)	3.58 (1.00)	2.67 (1.50)	0.18	0.63	0.71*
14. What Will Occur Between Visits	3.25 (0.87)	3.50 (1.00)	2.50 (1.38)	0.27	0.65	0.83*
15. Focus for Next Visit	2.42 (1.00)	3.33 (0.89)	2.00 (1.35)	0.96*	0.35	1.16*
Subtotal (1-15)	3.11 (0.53)	3.01 (0.97)	2.54 (0.65)	0.13	0.96**	0.57
16. Friendly	-	-	3.83 (0.39)	-	-	-
17. Positive	-	-	2.58 (1.44)	-	-	-
18. Response to Family Concerns	-	-	3.17 (1.34)	-	-	-
Total (1-18)	-	-	2.65 (0.68)	-	-	-

Note. EIP = Early Intervention Professional.

_aItem scored N/A for one participant, *n* = 11. _bMissing data, *n* = 11.

Wilcoxon signed-rank tests: **p* < .05. ***p* < .01.

Table 7 shows descriptive analysis of social communication strategies at the participant level, highlighting EI professionals' reported familiarity of the strategies, comfort describing the strategies to the caregiver, and frequency supporting the caregiver to use the strategies, as rated on a 4-point scale. On average, EI professionals reported relatively high levels of familiarity ($M = 3.37$, $SD = 0.45$), comfort ($M = 3.25$, $SD = 0.40$), and frequency ($M = 3.27$, $SD = 0.45$) across the five social communication strategies, matching the descriptors, (3) *pretty familiar*, (3) *comfortable*, and (3) *sometimes*.

Table 8 highlights examination of social communication strategies at the item level, with EI professionals' reporting relatively high levels of familiarity, comfort, and frequency across all five of the social communication strategies. The average scores for these three domains across all five social communication strategies matched the descriptors, (4) *very familiar* or (3) *pretty familiar*, (4) *very comfortable* or (3) *comfortable*, and (4) *often* or (3) *sometimes*.

Table 7

Participant-Level Reported Social Communication Strategies on the Family-Professional Interaction Questionnaire

Participants	Familiarity			Comfort			Frequency		
	EIP Report	Caregiver Report	EIP vs. Caregiver Report	EIP Report	Caregiver Report	EIP vs. Caregiver Report	EIP Report	Caregiver Report	EIP vs. Caregiver Report
	<i>M (SD)</i>	<i>M (SD)</i>	<i>d</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>d</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>d</i>
A	2.80 (0.45)	2.60 (0.55)	0.40	2.80 (0.45)	3.00 (0)	0.63	3.40 (0.89)	3.40 (0.55)	0
B	3.40 (0.89)	2.80 (1.30)	0.54	3.60 (0.55)	3.40 (0.55)	0.36	3.00 (1.23)	3.60 (0.55)	0.63
C	4.00 (0)	3.40 (0.55)	1.54	3.60 (0.55)	3.80 (0.45)	0.40	3.20 (0.45)	4.00 (0)	2.51
D	3.20 (0.84)	4.00 (0)	1.35	3.40 (0.55)	4.00 (0)	1.54	3.00 (1.23)	4.00 (0)	1.15
E	3.60 (0.55)	4.00 (0)	1.03	3.60 (0.55)	4.00 (0)	1.03	3.60 (0.55)	4.00 (0)	1.03
F	3.60 (0.55)	3.20 (0.45)	0.80	3.60 (0.55)	3.20 (0.45)	0.80	3.60 (0.89)	3.60 (0.55)	0
G	3.20 (0.84)	3.80 (0.45)	0.89	2.80 (0.45)	4.00 (0)	3.77	2.20 (0.84)	4.00 (0)	3.03
H	3.40 (1.34)	3.20 (0.84)	0.18	3.20 (1.30)	3.00 (1.00)	0.17	3.40 (1.34)	3.20 (1.30)	0.15
I	3.80 (0.45)	3.20 (0.45)	1.33	3.20 (0.45)	3.40 (0.55)	0.40	3.00 (0)	3.40 (0.55)	1.03
J	3.20 (0.45)	3.40 (0.89)	0.28	3.20 (0.45)	3.60 (0.55)	0.80	4.00 (0)	3.40 (0.55)	1.54
K	2.40 (0.55)	3.00 (0.71)	0.94	2.40 (0.55)	2.60 (0.89)	0.27	3.20 (0.45)	2.80 (0.84)	0.59
L	3.80 (0.45)	4.00 (0)	0.63	3.60 (0.55)	4.00 (0)	1.03	3.60 (0.55)	4.00 (0)	1.03
Total	3.37 (0.45)	3.38 (0.48)	0.02	3.25 (0.40)	3.50 (0.48)	0.57	3.27 (0.45)	3.62 (0.40)	0.82

Note. EIP = Early Intervention Professional.

Table 8

Item-Level Reported Social Communication Strategies on the Family-Professional Interaction Questionnaire

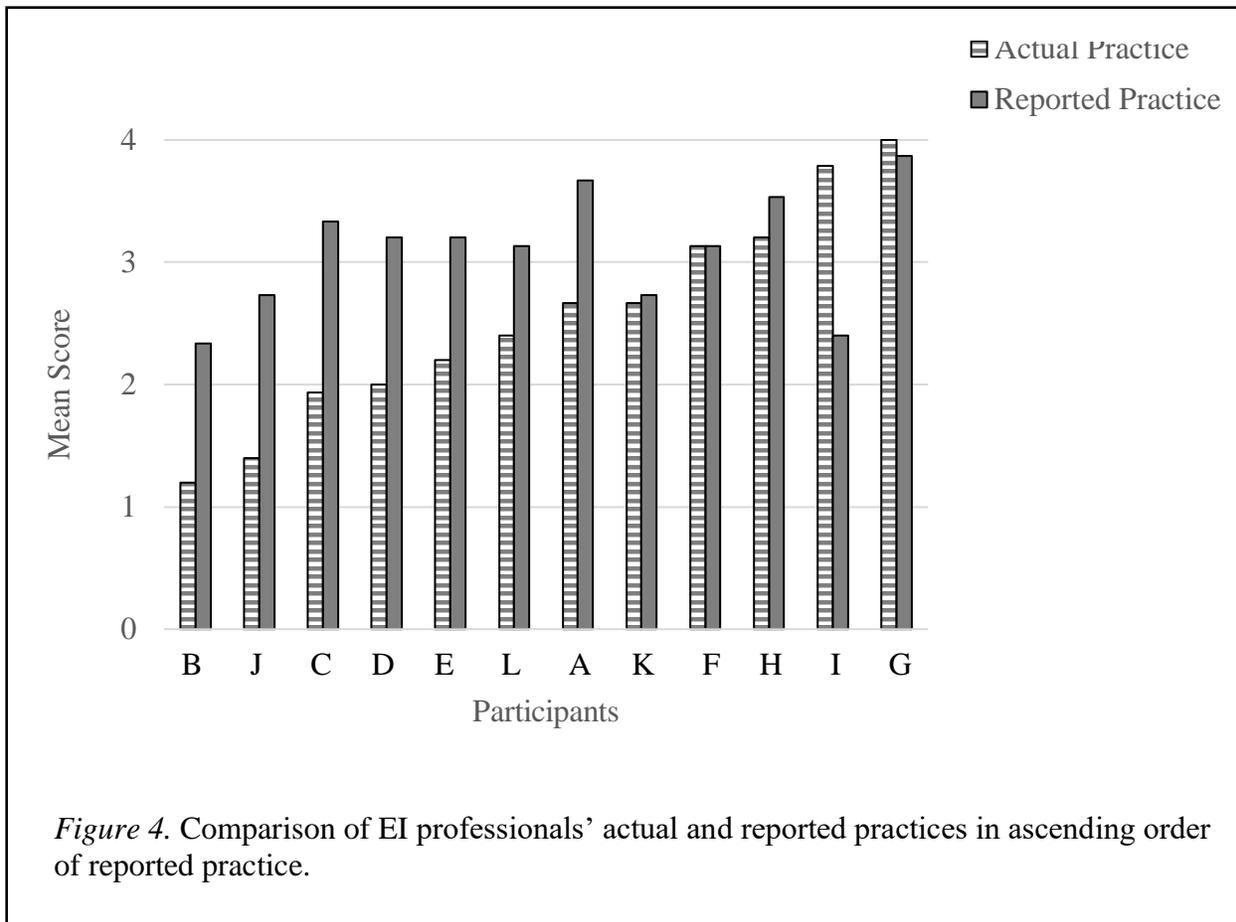
Social Communication Strategies	EIP Report	Caregiver Report	<i>d</i>
	(<i>N</i> = 12)	(<i>N</i> = 12)	
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
Arranging Environment			
16A. Familiarity	3.67 (0.65)	3.08 (0.67)	0.89
16B. Comfort	3.50 (0.67)	3.17 (0.72)	0.47
16C. Frequency	3.50 (0.52)	3.42 (0.67)	0.13
Following Child's Lead			
17A. Familiarity	3.75 (0.45)	3.92 (0.29)	0.45
17B. Comfort	3.50 (0.52)	3.92 (0.29)	1.00*
17C. Frequency	3.58 (0.52)	3.92 (0.29)	0.81*
Balancing Turns			
18A. Familiarity	2.83 (0.94)	3.50 (0.67)	0.82*
18B. Comfort	2.92 (0.90)	3.50 (0.67)	0.73*
18C. Frequency	2.67 (1.07)	3.67 (0.49)	1.20*
Prompting Language & Actions			
19A. Familiarity	3.58 (0.52)	3.42 (0.67)	0.27
19B. Comfort	3.42 (0.52)	3.50 (0.67)	0.13
19C. Frequency	3.58 (0.67)	3.58 (0.67)	0
Expanding Child's Focus			
20A. Familiarity	3.00 (0.74)	3.00 (0.95)	0
20B. Comfort	2.92 (0.52)	3.42 (0.67)	0.83
20C. Frequency	3.00 (1.04)	3.50 (0.91)	0.51

Note. EIP = Early Intervention Professional.

Wilcoxon signed-rank tests: * $p < .05$.

EI professionals' reported and actual practices. The second hypothesis was that EI professionals' reported home-visiting practices would differ from their actual practices with families of toddlers with or at risk for ASD, such that they would use recommended practices less frequently than reported. As Table 5 shows, EI professionals' reported family consultation practices ($M = 3.11$, $SD = 0.48$) at the participant level were, on average, greater compared to their actual (i.e., observed) family consultation practices ($M = 2.55$, $SD = 0.87$). The average effect size using Cohen's d was large ($d = 0.80$), demonstrating four fifths of a standard-deviation difference. Results from a Wilcoxon signed-rank test, however, showed that the difference between EI professionals' reported and actual family consultation practices was not statistically significant ($Z = -1.87$, $p = .06$). In addition, the effect sizes for seven of the 12 EI professionals were large (range = 0.96-2.10), with higher reported family consultation practices than actual family consultation practices for six of these EI professionals.

Figure 4 also presents EI professionals' reported and actual practices, but in a slightly different manner, highlighting discrepancies with EI professionals' average actual practice scores arranged in ascending order. Visual analysis revealed a trend in the data, with larger differences for EI professionals who had lower scores on actual practices and smaller differences for those who had higher scores on actual practices, with the exception of one participant.



As highlighted in Table 6, item-level examination of the difference between EI professionals' reported and actual family consultation practices showed a large average effect size ($d = 0.96$). Results from a Wilcoxon signed-rank test showed that this difference was statistically significant ($Z = -2.80, p = .005$). Three of the 15 items had large effect sizes, with professionals reporting they do these practices but the practices not being observed in the single home visit observation: (a) referring to the previous visit's plan; (b) providing ample opportunity for the caregiver to come up with ideas, opinions, strategies, or solutions; and (c) checking in on the feasibility of caregivers' ability to carry out agreed upon strategies. Although no reliability can be inferred from single items, some patterns can be deduced from looking at individual items. Results from Wilcoxon signed-rank tests revealed that three of the 15 items showed

statistically significant differences: (a) referring to the previous visit's plan ($Z = -2.88, p = .004$); (b) interacting primarily with the caregiver or with the caregiver and child ($Z = -2.45, p = .01$); and (c) providing ample opportunity for the caregiver to come up with ideas, opinions, strategies, or solutions ($Z = -2.10, p = .04$). On the other hand, the effect size was 0 for the item, using existing materials in the family's home, highlighting no difference between EI professionals' reported and actual practice.

Even though Table 7 and Table 8 present descriptive data for reported familiarity, comfort, and frequency of social communication strategies, accurately comparing reported practice and actual practice in this social communication strategy domain is challenging owing to the issue of appropriateness and relevance previously mentioned. For example, how often EI professionals report using a particular social communication strategy with their target families might not reflect whether or not they appropriately use the strategy during a particular home visit with that family, because the strategy might not be the best match for the target outcome(s) during that visit. Thus, Table 7 and Table 8 show descriptive data for EI professionals' reported familiarity, comfort, and frequency of social communication strategies, and Table 9 shows EI professionals' actual use of social communication strategies during the home visit with the family (pre-telecoaching), emphasizing whether they mentioned the strategy and whether the mention was appropriate. The ultimate goal of analyzing the data in this manner was to determine whether EI professionals' use of the strategy is appropriate in the context of the interaction with the family. EI professionals' actual use of social communication strategies (pre-telecoaching and post-telecoaching) is further discussed in the results under Telecoaching Intervention.

Table 9

Participant-Level Social Communication Strategies From Pre-Telecoaching to Post-Telecoaching on the Caregiver-Implemented Intervention Scale

Participants	Pre-Telecoaching		Post-Telecoaching	
	# Mentioned	# Appropriate	# Mentioned	# Appropriate
BIE				
A	1	1	1	1
C	1	0	4	4
D	3	1	1	1
F	5	5	4	4
I	0	0	1	1
K	3	3	4	4
VR				
B	1	1	4	4
E	3	2	3	3
G	2	1	4	4
H	2	2	1	1
J	1	0	0	0
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
BIE Total (<i>N</i> = 6)	2.17 (1.83)	1.67 (1.97)	2.50 (1.64)	2.50 (1.64)
VR Total (<i>N</i> = 5)	1.80 (0.84)	1.20 (0.84)	2.40 (1.82)	2.40 (1.82)
Total (<i>N</i> = 11)	2.00 (1.41)	1.45 (1.51)	2.45 (1.63)	2.45 (1.63)

Note. BIE = Bug-in-Ear; VR = Video Review.

EI professionals' and caregivers' reported practices. The third hypothesis was that EI professionals' reports would differ from caregivers' reports of home-visiting practices, with caregivers' reports more closely matching EI professionals' actual practice compared to EI professionals' reports. In fact, when examining the data at the participant level, EI professionals' reported family consultation practices ($M = 3.11$, $SD = 0.48$) were slightly greater compared to caregivers' reports of their EI professionals' family consultation practices ($M = 3.01$, $SD = 0.25$), on average (see Table 5). EI professionals' and caregivers' reports of family consultation practices differed only slightly ($d = 0.26$), and results from a Wilcoxon signed-rank test demonstrated no statistically significant difference ($Z = -1.16$, $p = 0.25$). Caregivers' reports of family consultation practices differed from EI professionals' actual (i.e., observed) family consultation practices ($d = 0.72$), although the difference was not statistically significantly different ($Z = -1.73$, $p = .08$). Even though EI professionals' and caregivers' reported practices did not differ to a large extent at the participant level, caregivers' reports and EI professionals' actual practices differed to a large extent (range = 0.81-1.48) for seven of the 12 participants. The direction of the differences between EI professionals' and caregivers' reported practices varied per dyad, with eight of the 12 EI professionals rating their practices higher compared to caregivers' reports, on average.

As Table 6 shows, 7 of the 15 items had large effect sizes for differences between caregivers' reports and EI professionals' reports of family consultation practices at the item level, ranging from 0.94 to 2.01, even though results from a Wilcoxon signed-rank test showed no statistically significant difference ($Z = .00$, $p = 1.00$). Acknowledging the lack of reliability of the family data, results from Wilcoxon signed-rank tests revealed that 8 of the 15 items showed statistically significant differences between EI professionals' and caregivers' reports. Caregivers'

reported family consultation practices and EI professionals' actual practices differed moderately ($d = 0.57$), but results from a Wilcoxon signed-rank test revealed this difference was not statistically significant ($Z = -1.56, p = .12$). Eleven of the items (range = 0.83-2.27) differed between caregivers' reports and EI professionals' actual practices, and results from Wilcoxon signed-rank tests revealed statistically significant differences for 10 of the items. Overall, caregivers' reported practices were lower compared to EI professionals' reported practices and actual practices only on the items that were reverse scored (Items 5, 6, 7, 9, 11).

Table 7 highlights differences between EI professionals' and caregivers' reports of social communication strategies at the participant level. The effect size for average comfort was moderate ($d = 0.57$) and the effect size for average frequency was large ($d = 0.82$), but results from Wilcoxon signed-rank tests showed no statistically significant difference for familiarity ($Z = -0.12, p = .91$), comfort ($Z = -1.88, p = .06$), or frequency ($Z = -1.69, p = .09$), on average. When examining these strategies per dyad, seven of the dyads had large effect sizes for familiarity, ranging from 0.80 to 1.54. In addition, for six of the dyads, EI professionals' average reported scores were higher compared to caregivers' average reported scores for familiarity, demonstrating variability across the 12 dyads. Six of the dyads had large effect sizes for comfort (range = 0.80-3.77), and, for three of the dyads, EI professionals' average reported scores were higher than caregivers' average reported scores in this domain. When examining frequency of social communication strategies, seven of the 12 dyads had large effect sizes (range = 1.03-3.03) and two of the dyads showed no difference. Only three of the 12 dyads showed that EI professionals' average reported scores were higher than caregivers' average reported scores in this domain. Therefore, the pattern of these results was that caregivers often reported higher

levels of familiarity, comfort, and frequency of EI professionals' use of the strategies compared to their EI professionals' reports.

When examining reported social communication strategies at the item level, EI professionals' and caregivers' reported practices differed, with large effect sizes for six of the 15 items, and two items showing no differences (see Table 8). Results from Wilcoxon signed-rank tests revealed statistically significant differences between EI professionals' and caregivers' reported practices for five of the items. Overall, caregivers rated nine of the items higher than EI professionals.

Telecoaching Intervention

EI professionals' actual practices via observational scores on the Caregiver-Implemented Intervention Scale at pre-telecoaching and post-telecoaching were examined to address the third research question: Do EI professionals' home-visiting practices differ from pre-telecoaching to post-telecoaching and how does this change differ between bug-in-ear telecoaching and video review telecoaching? Because Participant L participated in Part 1 only and did not participate in the telecoaching intervention, her baseline data were not included in the pre-telecoaching dataset.

Pre-telecoaching to post-telecoaching. The fourth hypothesis was that EI professionals' home-visiting practices would improve from pre-telecoaching to post-telecoaching. As Table 10 demonstrates, EI professionals' family consultation practices increased, on average, from pre-telecoaching ($M = 2.67$, $SD = 0.87$) to post-telecoaching ($M = 3.33$, $SD = 0.67$). There was a large difference between EI professionals' family consultation practices at pre-telecoaching and at post-telecoaching ($d = 0.85$) on average, and results from the Wilcoxon signed-rank test showed that this difference was statistically significant ($Z = -2.49$, $p = .01$). Nine of the 11 EI professionals showed an increase in family consultation practices from pre-telecoaching to post-

telecoaching, with the remaining two EI professionals demonstrating only slight decreases. The effect sizes for four of the 11 EI professionals were large (range = 1.13-2.17). These four EI professionals' average family consultation practices at pre-telecoaching were lower (range = 1.33-2.33) compared to all but one of the other EI professionals.

Figure 5 compares EI professionals' family consultation practices at pre-telecoaching and post-telecoaching, arranged by condition (i.e., bug-in-ear or video review) and in ascending order of pre-telecoaching scores. Visual analysis highlighted a slight trend in the data, with a tendency for EI professionals who had lower scores at pre-telecoaching to show larger gains from pre-telecoaching to post-telecoaching and for EI professionals who had higher scores at pre-telecoaching to show smaller gains. In addition, the two EI professionals whose scores slightly decreased from pre-telecoaching to post-telecoaching had relatively high scores at pre-telecoaching.

Table 10

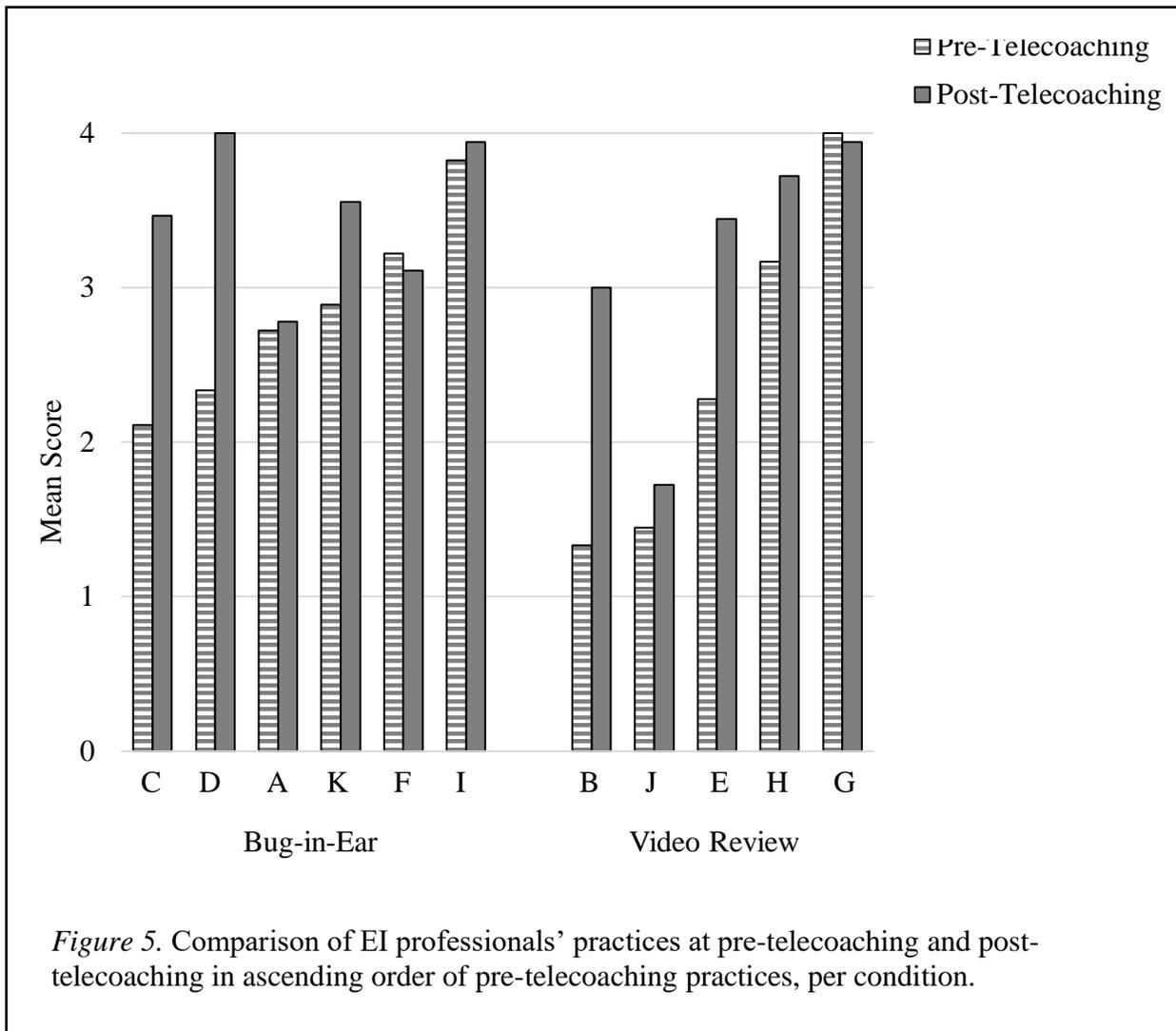
Participant-Level Family Consultation Practices From Pre-Telecoaching to Post-Telecoaching on the Caregiver-Implemented Intervention Scale (1-18)

Participants	Telecoaching Sessions	Pre	Post	Pre vs. Post
	<i>N</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>d</i>
BIE				
A	6	2.72 (1.32)	2.78 (1.22)	0.05
C	6	2.11 (1.28)	3.47 (1.13) ^a	1.13
D	6	2.33 (1.09)	4.00 (0.00)	2.17
F	5	3.22 (1.11)	3.11 (1.23)	-0.09
I	6	3.82 (0.39) ^b	3.94 (0.24) ^b	0.37
K	6	2.89 (1.37)	3.56 (0.98)	0.56
VR				
B	5	1.33 (0.97)	3.00 (1.03) ^c	1.67
E	6	2.28 (1.13)	3.44 (0.86)	1.16
G	4	4.00 (0)	3.94 (0.24) ^b	-0.35
H	6	3.17 (1.20)	3.72 (0.75)	0.55
J	4	1.44 (0.86)	1.72 (0.96)	0.31
<hr/>				
BIE Total (<i>N</i> = 6)	-	2.85 (0.62)	3.48 (0.47)	1.15
VR Total (<i>N</i> = 5)	-	2.44 (1.14)	3.17 (0.88)	0.72
<hr/>				
Total (<i>N</i> = 11)	-	2.67 (0.87)	3.33 (0.67)	0.85*
				<i>p</i> = .01

Note. Pre = Pre-Telecoaching; Post = Post-Telecoaching. BIE = Bug-in-Ear; VR = Video Review.

^aThree items scored N/A, *k* = 15. ^bOne item scored N/A, *k* = 17. ^cTwo items score N/A, *k* = 16.

Wilcoxon signed-rank tests: **p* < .05.



As Table 11 shows, examination of family consultation practices at the item level at pre-telecoaching and post-telecoaching demonstrates a large average effect size ($d = 1.14$). Results from a Wilcoxon signed-rank test showed that this difference was statistically significant ($Z = -3.51, p < .001$). Family consultation practices increased, on average, from pre-telecoaching to post-telecoaching, for 16 of the 18 items. The two items with average decreases in family consultation practices from pre-telecoaching to post-telecoaching were (a) asking the caregiver for updates and (b) reviewing what occurred during the visit. The effect sizes for six of the items were large (range = 0.82-1.70), and results from Wilcoxon signed-rank tests showed statistically

significant differences for seven of the items, five of which had large effect sizes: (a) referring to the previous visit's plan ($Z = -2.23, p = .03$); (b) discussing/practicing child skills in the context of routines ($Z = -2.23, p = .03$); (c) focusing on the caregiver's priorities ($Z = -2.06, p = .04$); (d) facilitating interaction between the caregiver and child during demonstration ($Z = -2.04, p = .04$); (e) providing ample opportunity for the caregiver to come up with ideas, opinions, strategies, or solutions ($Z = -2.22, p = .03$); (f) discussing a focus for the next visit ($Z = -2.16, p = .03$); and (g) being overtly positive about the child *and* caregiver ($Z = -2.04, p = .04$).

Table 9 highlights descriptive data for social communication strategies at the participant level at pre-telecoaching and post-telecoaching. On average, EI professionals' mention of the five social communication strategies increased from pre-telecoaching ($M = 2.00, SD = 1.41$) to post-telecoaching ($M = 2.45, SD = 1.63$), and the appropriateness of these mentions also increased from pre-telecoaching ($M = 1.45, SD = 1.51$) to post-telecoaching ($M = 2.45, SD = 1.63$). As noted previously, however, the present study emphasized the importance of a match between mention and appropriateness of a particular social communication strategy over frequent use of the strategies during a home visit. At pre-telecoaching, the number of items mentioned matched the number of items mentioned appropriately for six of the 11 EI professionals. At post-telecoaching, the number of items mentioned matched the number of items mentioned appropriately for all 11 of the EI professionals.

Table 11

Item-Level Family Consultation Practices From Pre-Telecoaching to Post-Telecoaching on the Caregiver-Implemented Intervention Scale (1-18)

Family Consultation Practices	BIE (<i>N</i> = 6)			VR (<i>N</i> = 5)			Total (<i>N</i> = 11)		
	Pre	Post	Pre vs. Post	Pre	Post	Pre vs. Post	Pre	Post	Pre vs. Post
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>d</i>	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>d</i>	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>d</i>
1. Updates	4.00 (0)	3.67 (0.82)	-0.57	4.00 (0)	3.60 (0.89)	-0.90	4.00 (0)	3.64 (0.81)	-0.63
2. Previous Visit's Plan	1.33 (0.82)	2.83 (1.47)	1.26	1.60 (1.34)	2.60 (1.52)	0.70	1.45 (1.04)	2.73 (1.42)	1.03*
3. Natural Activities	3.33 (1.03)	3.83 (0.41)	0.64	2.40 (1.52)	3.20 (1.30)	0.57	2.91 (1.30)	3.55 (0.93)	0.57
4. Context of Routines	3.00 (1.10)	3.83 (0.41)	1.00	2.20 (1.30)	3.40 (1.34)	0.91	2.64 (1.21)	3.64 (0.92)	0.93*
5. Materials	3.83 (0.41)	4.00 (0)	0.59	2.80 (1.64)	3.40 (1.34)	0.40	3.36 (1.21)	3.73 (0.91)	0.35
6. Priorities	3.17 (0.98)	3.83 (0.41)	0.88	2.20 (1.64)	3.40 (0.89)	0.91	2.73 (1.35)	3.64 (0.67)	0.85*
7. Interactions	3.00 (0.89)	3.50 (0.84)	0.58	2.80 (1.30)	3.20 (0.84)	0.37	2.91 (1.04)	3.36 (0.81)	0.48
8. Gathering Information	3.00 (0.89)	3.50 (1.23)	0.47	2.40 (1.52)	3.60 (0.89)	0.96	2.73 (1.19)	3.55 (1.04)	0.73
9. Demonstration	2.20 (1.30) _a	3.40 (0.89) _a	1.08	2.60 (1.34)	3.00 (0.82) _b	0.36	2.40 (1.27) _c	3.22 (0.83) _d	0.76*
10. Ideas, Opinions, Strategies, Solutions	2.17 (1.47)	3.50 (1.23)	0.98	2.00 (1.23)	2.80 (1.30)	0.63	2.09 (1.30)	3.18 (1.25)	0.85*
11. Feasibility	1.67 (0.82)	2.00 (1.55)	0.27	1.60 (1.34)	2.40 (1.52)	0.56	1.64 (1.03)	2.18 (1.47)	0.43
12. Appropriate Amount of Help	2.50 (1.05)	3.17 (1.17)	0.60	2.20 (1.10)	3.20 (0.84)	1.02	2.36 (1.03)	3.18 (0.98)	0.82
13. Review	2.33 (1.51)	2.60 (1.52) _a	0.18	2.80 (1.64)	2.00 (1.41)	0.52	2.55 (1.51)	2.30 (1.42) _c	-0.17

14. What Will Occur Between Visits	2.67 (1.51)	3.20 (1.30) ^a	0.38	2.40 (1.52)	2.75 (1.50) ^b	0.23	2.55 (1.44)	3.00 (1.32) ^d	0.33
15. Focus for Next Visit	2.00 (1.55)	3.80 (0.45) ^a	1.58	2.00 (1.41)	3.75 (0.50) ^b	1.65	2.00 (1.41)	3.78 (0.44) ^d	1.70*
16. Friendly	4.00 (0)	4.00 (0)	0	3.60 (0.55)	3.80 (0.45)	0.40	3.82 (0.41)	3.91 (0.30)	0.25
17. Positive	2.83 (1.47)	3.67 (0.82)	0.71	2.20 (1.64)	3.20 (1.30)	0.68	2.55 (1.51)	3.45 (1.04)	0.69*
18. Response to Family Concerns	4.00 (0)	4.00 (0)	0	2.20 (1.64)	3.60 (0.89)	1.06	3.18 (1.40)	3.82 (0.60)	0.59
Total	2.84 (0.81)	3.46 (0.54)	0.90**	2.44 (0.61)	3.16 (0.49)	1.30**	2.66 (0.66)	3.33 (0.50)	1.14***
			$p = .001$			$p = .001$			$p < .001$

Note. Pre = Pre-Telecoaching; Post = Post-Telecoaching.

^aItem scored N/A for one participant, $n = 5$. ^bItem scored N/A for one participant, $n = 4$. ^cItem scored N/A for one participant, $n = 10$. ^dItem scored N/A for two participants, $n = 9$.

Wilcoxon signed-rank tests: * $p < .05$. ** $p < .01$. *** $p < .001$

Table 12 shows EI professionals' mention and appropriateness of each individual social communication strategy at pre-telecoaching and post-telecoaching. Whereas two EI professionals mentioned expanding the child's focus at pre-telecoaching, six mentioned this strategy at post-telecoaching. Mention of the other social communication strategies from pre-telecoaching to post-telecoaching remained relatively the same. Even though 10 EI professionals mentioned prompting language and actions at pre-telecoaching, only six of them did so appropriately. At post-telecoaching, however, 10 EI professionals mentioned this strategy and their mention was appropriate, demonstrating an overall increase in understanding of the strategy from pre-telecoaching to post-telecoaching.

Table 12

Item-Level Social Communication Strategies From Pre-Telecoaching to Post-Telecoaching on the Caregiver-Implemented Intervention Scale

SC Strategies	BIE (N = 6)				VR (N = 5)				Total (N = 11)			
	Pre		Post		Pre		Post		Pre		Post	
	M	A	M	A	M	A	M	A	M	A	M	A
Arranging Environment	2	2	3	3	3	3	2	2	5	5	5	5
Following Child's Lead	2	1	3	3	1	1	2	2	3	2	5	5
Balancing Turns	2	1	0	0	0	0	1	1	2	1	1	1
Prompting Language & Actions	5	4	6	6	5	2	4	4	10	6	10	10
Expanding Child's Focus	2	2	3	3	0	0	3	3	2	2	6	6

Note. BIE = Bug-in-Ear; VR = Video Review; Pre = Pre-Telecoaching; Post = Post-Telecoaching; SC Strategies = Social Communication Strategies; M = Mentioned; A = Appropriate.

Bug-in-ear telecoaching and video review telecoaching. The fifth hypothesis was that EI professionals in the bug-in-ear condition would show greater improvements in home-visiting practices compared to EI professionals in the video review condition. Results from a Mann-Whitney U test showed that there was no statistically significant difference in average family consultation practices at the participant level between the bug-in-ear condition and video review condition at pre-telecoaching ($U = 11.00, p = .47, d = 0.45$). As Table 10 shows, family consultation practices for the bug-in-ear condition increased, on average, from pre-telecoaching ($M = 2.85, SD = 0.62$) to post-telecoaching ($M = 3.48, SD = 0.47$). Family consultation practices for the video review condition also increased, on average, from pre-telecoaching ($M = 2.44, SD = 1.14$) to post-telecoaching ($M = 3.17, SD = 0.88$). Owing to the smaller number of participants in these two groups, I did not run Wilcoxon signed-rank tests, however, the average effect size was large ($d = 1.15$) for the bug-in-ear condition and moderate ($d = 0.72$) for the video review condition. When comparing the bug-in-ear and video review conditions at post-telecoaching, results from a Mann-Whitney U test showed that there was no statistically significant difference in average family consultation practices ($U = 11.50, p = .52, d = 0.44$). The average effect size for pre-telecoaching to post-telecoaching differences was large for two EI professionals in the bug-in-ear condition and two EI professionals in the video review condition. In addition, visual analysis of the data presented in Figure 5 showed no distinct differences in patterns of growth across the two conditions. Rather, EI professionals with lower scores at telecoaching tended to show greater improvements in their family consultation practices from pre-telecoaching to post-telecoaching, regardless of condition, with the exception of one participant.

As Table 11 shows, when examining pre-telecoaching and post-telecoaching differences in family consultation practices across conditions at the item level, the average effect size was

large for both the bug-in-ear condition ($d = 0.90$) and for the video review condition ($d = 1.30$). Results from Wilcoxon signed-rank tests revealed statistically significant differences, on average, from pre-telecoaching to post-telecoaching for the bug-in-ear condition ($Z = -3.34, p = .001$) and for the video review condition ($Z = -3.19, p = .001$) as well. When examining pre-telecoaching to post-telecoaching differences for each individual item in both conditions, the effect sizes were large for six of the 18 items for the bug-in-ear condition (range = 0.88-1.58) and seven of the 18 items for the video review condition (range = 0.90-1.65). Results from Wilcoxon signed-rank tests, however, showed no statistically significant differences.

As Table 9 demonstrates, EI professionals in both the bug-in-ear condition and video review condition showed an increase, on average, in number of social communication strategies mentioned and mentioned appropriately from pre-telecoaching to post-telecoaching. Table 12 highlights few differences at the item level between the bug-in-ear condition and video review condition at pre-telecoaching and post-telecoaching. As mentioned previously, the intent of examining social communication strategies at pre-telecoaching and post-telecoaching was to determine whether EI professionals' mention of the strategy matched appropriateness at these two time points. Thus, differences in these data were not analyzed.

Social Validity

EI professionals' and caregivers' beliefs about the home-visiting practices described on their respective versions of the Family-Professional Interaction Questionnaire were examined to determine the social validity of the practices included on the measures and emphasized during the telecoaching intervention. EI professionals' and caregivers' responses on their respective versions of the Social Validity Questionnaire were also examined to determine the social validity of the telecoaching intervention.

EI professionals' and caregivers' beliefs. Table 13 reveals EI professionals' and caregivers' beliefs (i.e., rated importance) about the family consultation practices highlighted on the Family-Professional Interaction Questionnaire and Caregiver-Implemented Intervention Scale. On average, EI professionals ($M = 3.19, SD = 0.77$) and caregivers ($M = 3.05, SD = 1.09$) reported beliefs matching descriptor (3) *important* on the 4-point rating scale. Calculation of Cohen's d revealed no difference between EI professionals' and caregivers' beliefs ($d = 0.15$), and results from a Wilcoxon signed-rank test showed no statistically significant difference as well ($Z = -1.05, p = 0.29$). Three of the 15 items had large effect sizes (range = 1.14-1.31), and results from Wilcoxon signed-rank tests showed that these differences between EI professionals' and caregivers' beliefs were statistically significant. These three items consisted of: (a) focusing on the caregiver's priorities ($Z = -2.46, p = .01$); (b) interacting with the caregiver or with the caregiver and child ($Z = -2.25, p = .02$); and (c) discussing a focus for the next visit ($Z = -2.46, p = .01$), however, the directionality of these differences was not consistent. In addition, EI professionals reported greater importance for eight of the 15 items, whereas caregivers reported greater importance for seven of the 15 items, demonstrating no visible pattern in the directionality of differences. Examination of the data at the participant level also showed very few discrepancies (defined by at least a two-point difference in ratings) between each participant's reported use of practices and reported beliefs for each of the 15 family consultation practices. A total of 16 discrepancies out of a possible 180 were identified across the 12 EI professionals, and a total of 12 discrepancies out of a possible 180 were identified across the 12 caregivers, demonstrating their beliefs were most often in alignment with whatever practices the EI professionals used.

Table 13

Beliefs About Family Consultation Practices on the Family-Professional Interaction Questionnaire (1-15)

Family Consultation Practices	EIP Beliefs (<i>N</i> = 12)	Caregiver Beliefs (<i>N</i> = 12)	<i>d</i>
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	
1. Updates	4.00 (0)	3.83 (0.39)	0.62
2. Previous Visit's Plan	3.92 (0.29)	3.67 (0.49)	0.62
3. Natural Activities	3.92 (0.29)	3.75 (0.45)	0.45
4. Context of Routines	3.75 (0.62)	3.83 (0.39)	0.15
5. Materials	2.83 (1.03)	2.25 (1.14)	0.53
6. Priorities	2.50 (1.24)	1.25 (0.62)	1.28*
7. Interactions	2.67 (0.78)	1.75 (0.62)	1.31*
8. Gathering Information	3.75 (0.45)	4.00 (0)	0.79
9. Demonstration	1.67 (0.78)	1.33 (0.65)	0.47
10. Ideas, Opinions, Strategies, Solutions	3.83 (0.39)	3.92 (0.29)	0.26
11. Feasibility	1.82 (1.08) ^a	1.42 (0.52)	0.47
12. Appropriate Amount of Help	2.92 (0.79)	3.36 (0.81) ^a	0.55
13. Review	3.67 (0.49)	3.75 (0.45)	0.17
14. What Will Occur Between Visits	3.67 (0.49)	3.75 (0.45)	0.17
15. Focus for Next Visit	3.00 (0.95)	3.83 (0.39)	1.14*
Total	3.19 (0.77)	3.05 (1.09)	0.15

Note. EIP = Early Intervention Professional.

^aMissing data, *n* = 11.

Wilcoxon signed-rank tests: **p* < .05.

To determine the social validity of the social communication strategies, EI professionals and caregivers rated the overall helpfulness and feasibility of the five strategies. Overall, the EI professionals and caregivers found the five social communication strategies to be both helpful and feasible. EI professionals' ratings were helpful ($n = 3$) or very helpful ($n = 9$) and feasible ($n = 8$) or very feasible ($n = 4$). The caregivers' ratings were helpful ($n = 1$) or very helpful ($n = 11$) and somewhat feasible ($n = 1$), feasible ($n = 5$), or very feasible ($n = 6$).

Social validity questionnaires. Table 14 shows EI professionals' and caregivers' average ratings of the telecoaching intervention following their participation in the project. On average, EI professionals ($M = 3.65$, $SD = 0.23$) and caregivers ($M = 3.55$, $SD = 0.16$) agreed with the items on the social validity questionnaires, with their average scores in closest alignment with the descriptor (*4*) *strongly agree* on the 4-point rating scale. The following section highlighting EI professionals' responses during their post-telecoaching interviews further addresses social validity of the telecoaching intervention.

Table 14

Telecoaching Intervention Social Validity Questionnaires

Items	EIP (<i>N</i> = 11)
	<i>M</i> (<i>SD</i>)
1. I enjoyed participating in the telecoaching project.	3.91 (0.30)
2. Telecoaching is an effective way to support professionals and families in the community.	3.82 (0.40)
3. The technology was easy to use.	3.44 (0.53) ^a
4. My home-visiting practices have become more collaborative and family-centered as a result of participation in the telecoaching project.	3.55 (0.52)
5. My understanding of supports for children with social communication delays has improved as a result of participation in the telecoaching project.	3.55 (0.52)
6. The caregiver demonstrated increased confidence in interactions with his or her child as a result of participation in the telecoaching project.	3.36 (0.50)
7. I use the strategies learned from the telecoaching project with other families on my caseload.	3.91 (0.30)
Total	3.65 (0.23)
Items	Caregiver (<i>N</i> = 10) ^b
	<i>M</i> (<i>SD</i>)
1. I enjoyed participating in the telecoaching project.	3.70 (0.48)
2. Telecoaching is an effective way to support professionals and families in the community.	3.70 (0.48)
3. My early interventionist's home-visiting practices have become more collaborative and family-centered as a result of participation in the telecoaching project.	3.70 (0.48)
4. My early interventionist's understanding of supports for children with social communication delays has improved as a result of participation in the telecoaching project.	3.67 (0.50)
5. My knowledge of supports for children with social communication delays has improved as a result of participation in the telecoaching project.	3.33 (0.50)
6. My confidence in interactions with my child has increased as a result of participation in the telecoaching project.	3.40 (0.52)
7. I have seen improvements in my child as a result of participation in the telecoaching project.	3.40 (0.52)
8. I use the strategies learned from the telecoaching project in my everyday routines.	3.50 (0.53)
Total	3.55 (0.16)

Note. EIP = Early Intervention Professional.

^aMissing data, *n* = 10. ^bOne survey not returned.

Post-Telecoaching Interviews

EI professionals' descriptions of their home-visiting practices and telecoaching experience via post-telecoaching interviews were examined to address the fourth research question: How do EI professionals describe their home-visiting practices and their participation in the telecoaching intervention following the intervention? Results are organized by findings and, following convention from grounded theory (Glaser and Strauss, 2017), those findings are placed in the context of the conceptual framework and purposes of this study. The following nine findings are conclusions drawn from EI professionals' reports, and statements throughout this section are stated in general terms, understanding that these terms never apply to *all* members of a particular population, such as EI professionals.

Finding #1: Telecoaching improves EI professionals' approach to home visiting.

When asked to describe how their home-visiting practices changed because of their participation in the telecoaching project, all the EI professionals provided specific examples of ways their home-visiting practices improved. EI professionals also provided such examples throughout the interviews when reflecting on their home visits and the overall telecoaching experience. Many EI professionals referred to specific examples related to the 18 family consultation practices from the Caregiver-Implemented Intervention Scale that they used more frequently following participation in the telecoaching project. Such practices included: (a) asking the caregivers more questions; (b) encouraging the caregivers to provide input; (c) interacting with the caregivers more than the children; (d) asking the caregivers their priorities and what they wanted to focus on during the home visits; (e) tying strategies to different routines or times of day; (f) making a plan with the caregivers for the next home visit; (g) checking in with the caregivers on what they want to focus on between home visits; and (h) referencing the plan from the previous visit at the

beginning of each home visit. One EI professional described the following change in her practice:

My home-visiting practices have changed a lot. A lot in the sense that instead of me being the one that is modeling and demonstrating first, I'm allowing the parent to step in and try the things that they come up with from their own experience with their child.

Another EI professional said, "I feel like I have become less dominant in these sessions and a little more open-ended – not necessarily passive, but open-ended to the extent of letting the parent be in the driver seat."

EI professionals also described specific examples of practices they did previously during their home visits that changed following participation in the telecoaching project. These examples included: (a) providing suggestions more often; (b) taking a therapist-led approach; (c) being more hands-on and stepping back less; (d) talking more and listening less; (e) telling caregivers what to work on; and (f) coming into the home visits with their own agenda or with pre-determined handouts. The descriptions of EI professionals' changes in their home-visiting practices, including increases in recommended practices and decreases in non-recommended practices, demonstrate the overall improvement in their home visiting and reflect the implementation of a more family-centered, caregiver-implemented approach to intervention.

Finding #2: EI professionals' work with the families during telecoaching made a difference in caregivers and children. In addition to the changes in their own home-visiting practices described above, EI professionals also described changes they saw in the caregivers and children during the telecoaching project and the overall effectiveness of their work with these families. EI professionals described caregivers as more engaged and more hands on with the children, and they reported improvements in communication and rapport with the caregivers.

They also noted improvements in caregivers' use of strategies and described the process as "empowering" to the caregivers. EI professionals highlighted specific things the caregivers started to do more frequently, including involving other family members and thinking through what they could do to help their children instead of asking the EI professionals. One EI professional provided the following perspective:

I think it was really effective. I mean, I saw big improvements in [the child]. I think Mom got a lot from it. Like, she started to understand what we were working on and why, and she even mentioned in one of her videos she had stopped focusing so much on the academic stuff.

Based on the focus of the telecoaching intervention, it can be assumed that when the EI professional mentioned "academic stuff," she was referring to the caregiver's perceived importance of the child's knowledge of letters, numbers, colors, and so on. It is likely that the focus of the telecoaching intervention on both functional and social communication skills supported this caregiver to shift her focus away from the preacademic skills and see the importance of functioning and social communication. Another EI professional also saw the effectiveness of the telecoaching intervention with her target family, noting, "I think that it was effective because, you know, a lot of the – several outcomes that they were working on they met and they figured it out through the coaching." Even though this study did not gather observational data on child or caregiver outcomes, EI professionals' descriptions provide a perspective on the overall effectiveness of the telecoaching project and on child and caregiver changes that the EI professionals personally observed in their work with the families.

Finding #3: Telecoaching with one target family supports EI professionals to use the practices and strategies with other families on their caseloads. Not only did EI professionals

report changes in their home-visiting practices with the families who participated in the telecoaching project, but all the EI professionals reported generalization of such changes to their work with other families on their caseloads. One EI professional summarized this generalization with the statement, “I think since Day 1 I definitely started applying some of these suggestions and things that we’ve learned through telecoaching to many if not all of my families.” Another EI professional highlighted how the changes she has made have influenced her work with other families, noting, “I’ve seen that shift that I saw with this family on the study with all of the families that I’m working with. Even some ones that are much more difficult altogether.”

Primarily, when reflecting on the generalization of what they learned from the telecoaching project with other families, EI professionals referred to the specific family consultation practices mentioned previously (i.e., under the first headline) and how they have applied those practices to their home visits with other families on their caseloads. One EI professional even noted that she has not only applied what she learned from the telecoaching project to all of the families she works with, but has applied it to her work in the daycare setting as well. EI professionals also reported using the Social Communication Menu with other families and provided specific examples of social communication strategies they have carried over (e.g., modeling language, arranging the environment). Even though the telecoaching project focused on one target family per EI professional, these findings highlight the ways in which the project supported EI professionals’ generalization of skills across the many families they see on their caseloads.

Finding #4: Written materials from the telecoaching intervention are helpful. When describing their experiences with the telecoaching process, EI professionals expressed positive sentiments about the usefulness of the written materials (i.e., handouts) and email recaps. All of

the EI professionals shared that the practices on the Caregiver-Implemented Intervention Scale were helpful. Those who were not using high-quality family consultation practices before the telecoaching project, however, found the Caregiver-Implemented Intervention Scale to be more useful than those who already demonstrated strong family consultation practices before participating in the telecoaching. EI professionals described this handout as a framework to guide home-visiting practices and as a tool for self-reflection.

All of the EI professionals also expressed the usefulness of the Social Communication Menu. Although they said how helpful this handout was for their own practices, they also expressed its usefulness for the families they worked with as well. One EI professional described this handout using the menu metaphor, stating:

I like how literally on the handout that was provided, it literally is a menu. And it's almost as if, you know, *Okay, what are you hungry for today? What are we gonna work on today?...That's the item we need to order. That's the item that's gonna allow us to maintain or meet that goal. Satisfy that hunger or satisfy him using that word or satisfy him using that skill.*

When discussing the social communication strategies from the handout, one EI professional noted:

They were awesome. Like, it just provides a really good way to help...it just provides a really good way for the families to see that working on communication is not just seated, at a table, where we work. It's all-encompassing of what you do – every little mundane detail of your day.

Another resource incorporated into the telecoaching process included the email recaps following each telecoaching session. Even though the email recaps did not serve as the primary

mode of feedback for this particular study, all of the EI professionals expressed that the email recaps were very helpful. EI professionals noted how difficult it can be to remember everything with such large caseloads and how the email recaps served as helpful reminders, which they could review before each home visit. Overall, EI professionals' perspectives related to the written materials and email recaps demonstrate the ways in which these resources contributed to the overall telecoaching process.

Finding #5: Family consultation practices are the foundation on which social communication strategies sit. The emphasis on family consultation practices versus social communication strategies during telecoaching was “like baking a cake.” When asked whether more time was spent focusing on the family consultation practices or the social communication strategies during the telecoaching sessions, EI professionals' responses varied based on their use of family consultation prior to beginning the telecoaching. One EI professional equated this split between the two topics to baking a cake:

I feel like that Caregiver-Implemented Intervention Scale is kind of where, as a therapist, you need to start. That's baking the cake. That's prepping it, stirring it, putting all the ingredients together, putting it in the oven, turning it on. It takes more time to do that...But then, the social communication strategies, that's where you take it a step further, and that's like, what specific thing are you gonna use to decorate that cake? So, once the therapist has prepared everything, okay then, now what are we gonna use? What are we gonna sprinkle on top of this cake? What is going to make this cake taste good? What is going to make it look good? What is going to make it look the way we want it to look? What is going to make it be the cake Mom wants it to be? And that's the social communication strategies.

EI professionals' responses about the amount of time spent on each area (i.e., family consultation practices vs. social communication strategies) for the duration of their participation in the telecoaching project supported this baking metaphor. For example, EI professionals who did not use high-quality family consultation practices at the beginning of the telecoaching project reported focusing more on the family consultation practices at first, which one EI professional described as, "getting into a groove." They noted that a greater emphasis was then placed on the social communication strategies toward the end of the telecoaching project, once the family consultation practices were more solidified. On the other hand, EI professionals who already demonstrated high-quality family consultation practices at the beginning of the telecoaching project reported spending more time on the social communication strategies. This baking metaphor helps parse out areas of focus when coaching different EI professionals, depending on which skills they possess prior to receiving coaching.

Finding #6: EI professionals liked whatever telecoaching method they received.

When asked about their experiences participating in the bug-in-ear or video review conditions of the telecoaching project, EI professionals spoke positively about whichever condition to which they were assigned. Furthermore, when asked whether they would have preferred to have received the other condition, some could see the possible benefits of the other condition (e.g., how video review could be helpful in places that do not have Wi-Fi), but none expressed that they would have preferred the other condition. EI professionals in the bug-in-ear condition noted that they enjoyed the fact that the process was "in-the-moment" and "immediate," with "real-time coaching." On the other hand, one EI professional in the bug-in-ear condition noted, "I still feel like in the moment, it's really hard to reflect. I still think I got the best coaching after the fact because that's when I really had time to think about it." EI professionals in the video review

condition said they liked being able to go back and see missed opportunities as well as being able to “dissect what has happened” and “to discuss with somebody else.” EI professionals in both conditions expressed an initial desire to be in the other condition prior to random assignment and some hesitations about the conditions to which they were assigned (e.g., potential awkwardness of the bug-in-ear condition), but they said they ultimately were pleased with the telecoaching they received. Overall, EI professionals preferred whichever condition to which they were randomly assigned, demonstrating their overall satisfaction with the telecoaching they received.

Finding #7: Telecoaching is enjoyable for EI professionals. As previous headlines highlight, EI professionals expressed satisfaction with many aspects of the telecoaching process, indicated by the positive changes they witnessed, the usefulness of the resources provided, and their perspectives on the telecoaching methods they received. In addition to describing these particular aspects of telecoaching project, EI professionals also expressed the usefulness of the initial webinar, which they described as a good overview and preparation for what was going to happen in the telecoaching process. On a more general level, all of the EI professionals expressed that they enjoyed the telecoaching process. For example, EI professionals expressed how much they liked the collaboration with the telecoach and the ability to discuss and dissect their home visits with someone else (regardless of condition). One EI professional in the bug-in-ear condition said, “I loved it. It was great! I felt like someone was there with me trying to make the visits, again, more smooth.” One EI professional in the video review condition stated:

I felt like you were my partner in that, you know, home visiting with the family. Even though you weren't there, you know, it felt like you were part of that visit. And you know, you pointed out a lot of things to me and helped me through situations and, so I found that very beneficial.

EI professionals expressed their desire to continue the telecoaching beyond their participation in the study, with statements like, “I actually am kind of sad that I’m not gonna have you in my ear every now and then,” and, “I really enjoyed it. And I want to keep going!” EI professionals who participated in other workshops or trainings on related topics also expressed how different this telecoaching was in comparison. One EI professional said, “I think I learned more doing this than I have in those...Again, I know how it’s supposed to look but this has really helped me solidify everything, which I don’t think I would have been able to get.”

Another EI professional said:

I have to say, my home visit training, I feel like it came from you. Honestly. And I think [other participant] would agree. Because I feel like we probably are a little further along than some of the other people that are – because this is amazing, you know? I feel like I got private tutoring. So nice!

Such statements, combined with the previously highlighted descriptions of the specific aspects of the telecoaching, demonstrate EI professionals’ overall enjoyment of their participation in the telecoaching process.

Finding #8: Despite technology glitches and challenges, the technology is mostly easy to use. Because this telecoaching project took place entirely at a distance, it comes as little surprise that one of the biggest hurdles during the project consisted of technology glitches and challenges. EI professionals described different challenges they faced, which primarily consisted of issues with the video upload process and the telecoaching device. EI professionals reported difficulties with the video upload process, describing it as “stressful” and “tough.” Many EI professionals reported that this was primarily a problem at the beginning of the project, with one EI professional stating, “Once I figured it out – I think initially it was stressful because I didn’t

know how to download, upload the videos. But I think once – as you said, once we got over that hump, it became easier.” Another EI professional described it as an issue of familiarity at the beginning and highlighted that she had the telecoach for tech support.

EI professionals also shared various challenges with the telecoaching device, including finding a place to put the device, the device occasionally falling over, and a few children wanting to play with the device. EI professionals in the bug-in-ear condition also shared difficulties with connecting the Bluetooth earpiece to the device. One EI professional stated:

I think initially, we definitely had some technology glitches, figuring out how to make the audio and the video work together every time, and those kinds of things. And there were some initial glitches on kind of uploading that first video. But I think we worked those out by the third visit – I think we kind of had that down.

Although limited, a few EI professionals also described Internet issues, including one visit where the family did not have a Wi-Fi connection in the home, and another visit where the Internet connection between the EI professional and telecoach went out.

EI professionals often described the challenges listed above as “hiccups” and many noted that these were primarily challenges at the beginning of the project. As one EI professional described, “Once I got it figured out, it was a no-brainer.” Despite challenges, EI professionals described the technology as easy to use overall. EI professionals shared that they liked the way they were able to position the telecoaching device and carry it with them to different rooms during the home visits. One EI professional said, “I think the technology was wonderful to use. It was very user-friendly.” Another EI professional noted that she was not technologically savvy and that if the technology were very difficult, she would not have been able to use it. Others pointed out that this project would not have been possible without the technology, and described

it as “easy to use” and “very feasible.” Even though EI professionals faced technology glitches and challenges, particularly at the beginning of the project, they found it easy to use overall.

Finding #9: Possible reasons for difficult recruitment of participants are fears of being watched or judged, a lack of desire to change, and the time commitment. Despite significant efforts, the recruitment process for this project was slow and the total number of participants recruited was lower than initially planned. Thus, one of the interview questions addressed why the EI professionals who did in fact participate in the project thought others might not have wanted to participate. The three most frequently cited possible reasons included fears of being watched or judged, a lack of desire to change, and the time commitment. EI professionals shared that people might be nervous about the process of being video recorded and watched and receiving feedback, with a fear that they would be judged for the practices they use. One EI professional highlighted the importance of EI professionals videoing themselves and watching their own home visits. Another EI professional mentioned how some people might be used to receiving negative feedback, and noted, “That was not the experience at all. It was amazing and I felt empowered and excited about it.” EI professionals also expressed that some people have been working in the field for a long time and might not want to or be ready to make changes. One EI professional also shared that some people might think they already use great home-visiting practices and do not need any help. Lastly, EI professionals expressed how busy everyone is and how they likely did not want to add anything else to their plates or feared it would be too much of a time commitment. As one EI professional simply stated, “Ain’t nobody got time for it.” One EI professional said it was more time-consuming than she originally planned, but many others noted that it did not take any additional time. Even though these possible reasons for slow recruitment did not keep the 11 EI professionals from participating in

the telecoaching project, they provide a good perspective on recruitment efforts and can help guide future community-based research.

Patterns in the findings. Based on the findings presented above, a few patterns among the headlines are highlighted. The first three headlines, *Telecoaching improves EI professionals' approach to home visiting*, *EI professionals' work with the families during telecoaching made a difference in caregivers and children*, and *Telecoaching with one target family supports EI professionals to use practices and strategies with other families on their caseloads*, suggest that EI professionals saw positive changes on multiple levels during the telecoaching intervention. This pattern supports the use of the telecoaching intervention as a means to foster change across professionals and families during regular, Part C home visits. Furthermore, the headlines, *Written materials from the telecoaching intervention are helpful*, *EI professionals liked whatever telecoaching method they received*, *Telecoaching is enjoyable for EI professionals*, and *Despite technology glitches and challenges, the technology is mostly easy to use*, show a pattern of EI professionals' overall satisfaction with the telecoaching process. This pattern also provides evidence of the overall feasibility of the telecoaching intervention in the existing Part C system, which was one of the main goals of the telecoaching intervention in the present study. The links are as follows: (a) Coaching through (b) technology leads to (c) family consultation and then to (d) social communication strategies. All of this is influenced by EI professionals' affect about the telecoaching: their improved self-efficacy, their enjoyment of the telecoaching, and their feeling it was helpful. Overall, the findings presented in the section above provide further support for the use of telecoaching as a community-viable approach to professional development for EI professionals working with families of toddlers at risk for ASD.

CHAPTER 5: DISCUSSION

Despite advances in early intervention and autism spectrum disorder (ASD) research, gaps in the literature remain, including limited research on early intervention professionals' (EI professionals') reported and actual practices and on coaching Part C professionals in the home environment, particularly from a distance, with no known research to date on the use of bug-in-ear telecoaching with this group of professionals. Additionally, research with EI professionals who work with families of young children with or at risk for ASD is limited. In response to these research gaps, the primary purposes of this study were (a) to examine the differences between EI professionals' reported and actual practices during home visits with families of toddlers with or at risk for ASD and (b) to examine different methods of telecoaching as a means to support EI professionals' use of recommended practices. This mixed-methods study addressed the following research questions:

1. What do EI professionals report as their typical home-visiting practices with families of toddlers with or at risk for ASD and how do these compare with their actual home-visiting practices?
2. Do EI professionals' reports differ from caregivers' reports of home-visiting practices?
3. Do EI professionals' home-visiting practices differ from pre-telecoaching to post-telecoaching and how does this change differ between bug-in-ear telecoaching and video review telecoaching?

4. How do EI professionals describe their home-visiting practices and their participation in the telecoaching intervention following the intervention?

Findings related to these research questions, as well as limitations, future directions, and implications, are discussed in the sections below.

Reported and Actual Practices

Research question #1. Two purposes of the present study were to gather updated information on EI professionals' actual practices (via observation) with families of toddlers with or at risk for ASD and to gain an understanding of whether EI professionals' reports of their practices aligned with their actual practices. Results generally supported the first hypothesis, as EI professionals tended to report using family consultation practices that were in close alignment with recommended practice. They also reported fairly high levels of familiarity, comfort, and frequency across social communication strategies. Findings somewhat supported the second hypothesis that EI professionals' reported practices would differ from their actual practices, such that they would not actually use recommended practices to the degree reported. At the mean level, EI professionals' reported practices were, in fact, greater compared to their actual practices, however, different analyses highlighted some variability in the discrepancies between these two constructs. For example, there were large differences between average reported and actual practices when analyzing the data at the participant level and item level, but this difference was only statistically significant per the Wilcoxon signed-rank test at the item level. When looking at the data for each participant, there was some variability in the size and direction of the differences, but a pattern in these differences emerged, such that differences tended to be larger for EI professionals with lower actual practice scores and smaller for EI professionals with higher actual practice scores. Even though Wilcoxon signed-rank tests did not reveal statistically

significant differences across all analyses, the large effect sizes and observed trend in the data indicate clinically meaningful differences in reported versus actual practices, particularly in relation to whether or not EI professionals' actual practices aligned with recommended practice.

These findings on reported and actual practices suggest that EI professionals have knowledge of what is considered best practice in early intervention and ASD. Results related to EI professionals' beliefs also support this idea, as they expressed overall importance of the recommended practices and showed few discrepancies between reported practices and beliefs, indicating they report using the practices they believe are important. Despite knowledge of or beliefs about recommended practice, however, findings indicate that a lack of translation of knowledge into practice remains to some degree, similar to what Meadan and colleagues (2018) suggested. In addition, the size of the gap between reported and actual practices seems to be more prevalent for EI professionals who use recommended practices to a lesser degree and less prevalent for those who use recommended practices to a greater degree. This suggests that EI professionals' ability to accurately report on their own practices might be based on the quality of implementation of such practices.

Despite limited and somewhat mixed research on EI professionals' reported and actual practices in the past (e.g., Campbell & Sawyer, 2009; Fleming et al., 2011; Salisbury et al., 2012), the historical evolution of early intervention and ASD is one possible explanation for why EI professionals would, in fact, have knowledge of and report using practices that are in alignment with recommended practice at this point in time. For example, Part C legislation originated more than 30 years ago (IDEA, 2004), early intervention guidelines and recommendations have remained consistent for many years now (e.g., DEC, 2014; Workgroup on Principles and Practices in Natural Environments, 2008), and ASD awareness and early

identification have improved over the years (Mandell & Lecavalier, 2014; Rogers & Talbott, 2016). In addition, states' Part C early intervention systems tend to share similar guiding practices or principles using common buzz words in the field, such as family centered, routines based, and parent coaching, to name a few (see ECTACenter.org for a list of states' websites), and professional conferences and statewide training initiatives in early intervention frequently emphasize ASD as a current professional development topic. Thus, EI professionals are likely to have awareness of what they *should* be doing during their home visits, hearing the same messages many times from multiple sources, but why would they report using these recommended practices if they do not actually use them? Keeping generalizability theory (Cronbach, Rajaratnam, & Gleser, 1963; Shavelson & Webb, 1981) in mind and recognizing that EI professionals' actual practices in this study were observed practices that occurred during only one possibly non-representative home visit at pre-telecoaching, I propose the following theories as potential explanations. Social-desirability bias (Edwards, 1953) could provide an explanation for the discrepancies between EI professionals' reported and actual practices, as EI professionals might be inclined to report that they use practices they know are considered best practice, even if they do not actually use those practices during their typical home visits. The purpose of the reversed items in the Family-Professional Interaction Questionnaire was to mitigate this bias, however, the high reliability for the professional version and low reliability for the family version further suggest that the EI professionals were aware of these reversed items and understood how to answer each item to be in alignment with favorable practices. The Dunning-Kruger effect (Dunning, 2011; Kruger & Dunning, 1999) provides another possible explanation for this discrepancy, especially with the observed trend of larger differences for EI professionals who used recommended practices to a lesser degree and smaller differences for EI professionals

who used recommended practices to a greater degree. As the Dunning-Kruger effect highlights, those with fewer skills in a particular area are more likely to demonstrate greater confidence and overestimate their abilities (Dunning, 2011; Kruger & Dunning, 1999). On the other hand, confidence tends to decrease with acquisition of skills and awareness, yet over time, a more accurate match between confidence and skills occurs (Dunning, 2011; Kruger & Dunning, 1999). Results from the present study suggest that this phenomenon could play a role in EI professionals' abilities to accurately reflect on their own practices based on their abilities to implement such practices.

Research question #2. Another purpose of this study was to determine whether EI professionals' reported practices differed from caregivers' reported practices. Owing to the lack of reliability of the caregiver data, the following findings must be interpreted with caution. Results minimally supported the third hypothesis that EI professionals' and caregivers' reported practices would differ, with caregivers reporting practices matching EI professionals' actual practices compared to EI professionals' reported practices. At the mean level, EI professionals' and caregivers' reported family consultation practices did not differ. When examining individual participant dyads and family consultation items, there were some large and statistically significant differences between EI professionals' and caregivers' reported practices, but the directionality of these differences varied, demonstrating no consistent pattern in the data. Even though EI professionals' and caregivers' reported practices did not differ at the mean level, caregivers' reported practices were, in fact, in slightly closer alignment with actual practices than EI professionals' reported practices were. At the mean level, results showed moderate differences between caregivers' reported practices and EI professionals' actual practices, whereas large differences existed between EI professionals' reported and actual practices. In

addition, there was a large difference between EI professionals' and caregivers' reported frequency of social communication strategies at the mean level, although this difference was not statistically significant per the Wilcoxon signed-rank test. When examining individual participant dyads and social communication strategies, there were some differences between EI professionals' and caregivers' reported frequency, but similar to family consultation practices, there was variability in the directionality of these differences.

As mentioned previously, this study lacks reliability of the caregiver-reported data, so conclusions about individual items on the Family-Professional Interaction Questionnaire: Family Version are described with caution. One interesting observation worth noting about item-level differences between EI professional and caregiver report and between caregiver report and actual practice involves the directionality of these differences. Caregivers' reported practices were only lower than EI professionals' reported practices and actual practices for the five items that were reverse scored (Items 5, 6, 7, 9, 11), meaning they gave high ratings for these items in their original questionnaire responses. The purpose of reversing these items was to diminish the potential for social-desirability bias, however, it is possible that caregivers are less familiar with what EI professionals *should* do during home visits, making the reverse scoring less effective for caregiver ratings. Rather, it is possible that caregivers believed they provided positive reports of their EI professionals' practices by assigning high ratings to these reversed items. Although many studies have shown that families' reports of EI professionals' practices highlight a discrepancy between what EI professionals do and what is considered best practice (e.g., Crais et al., 2006; Mahoney, O'Sullivan, & Dennebaum, 1990; McBride et al., 1993; McWilliam et al., 2000), indicating the ability to accurately differentiate between actual and recommended practice, some research in early intervention has shown that families really like their EI

professionals, regardless of the practices they use (e.g., McWilliam et al., 1995). This could suggest that caregivers' admiration for their EI professionals and social-desirability bias might influence reports of their EI professionals' practices, with a tendency to rate practices that fall on the higher end of the scale. Thus, while it is important to gain caregivers' perspectives on their early intervention services, results from this study suggest that caregiver report might not be the most reliable tool for measuring EI professionals' home-visiting practices.

Telecoaching Intervention

Research question #3. Another purpose of the study was to examine two different telecoaching methods as a way of supporting EI professionals' home-visiting practices. Results generally supported the fourth hypothesis that EI professionals in both telecoaching conditions would demonstrate improvements in their home-visiting practices from pre-telecoaching to post-telecoaching. At the mean level, EI professionals' family consultation practices improved from pre-telecoaching to post-telecoaching, regardless of the condition, as expected. There was variability within each group, however, with the majority of EI professionals showing increases in their scores to varying degrees from pre-telecoaching to post-telecoaching and two EI professionals showing slight decreases. These findings suggest variability in individual responses to the telecoaching intervention across conditions, but in general, improvements were observed overall. Despite variability, results demonstrated that those who had lower pre-telecoaching scores tended to show greater increases in their scores at post-telecoaching compared to those with higher pre-telecoaching scores, suggesting a possible ceiling effect for those with higher scores. Even though participants with higher scores did not have as much room for improvement, their interview responses suggest that they saw improvements in their home-visiting practices and found the telecoaching intervention to be worthwhile. In addition, EI professionals in both

conditions showed improvements in how they used social communication strategies during their home visits. Although the social communication strategies were intended to serve as a toolkit for EI professionals and families and the EI professionals were not expected to necessarily increase their use of the strategies from pre-telecoaching to post-telecoaching, they did, in fact, show an increase in mention of strategies from pre-telecoaching to post-telecoaching at the mean level. More importantly, approximately half of the EI professionals used the social communication strategies appropriately at pre-telecoaching, whereas all EI professionals used the social communication strategies appropriately at post-telecoaching, indicating improvement in their understanding and application of the social communication strategies they used.

On the other hand, findings did not support the fifth hypothesis that EI professionals in the bug-in-ear condition would show greater improvements in their home-visiting practices compared to EI professionals in the video review condition, as results showed no conclusive superiority of one method over the other. At the mean level, EI professionals in both conditions showed relatively similar improvements in their family consultation practices from pre-telecoaching to post-telecoaching. EI professionals also showed improvements in their match of mention and appropriateness of social communication strategies across both conditions. Although these findings did not support the original hypothesis, they suggest that EI professionals' home-visiting practices improved following participation in the telecoaching intervention, regardless of the telecoaching method used.

Even though the telecoaching research is quite limited when it comes to Part C EI professionals, previous studies have shown improvements in EI professionals' home-visiting practices following telecoaching interventions (e.g., Krick Oborn & Johnson, 2015; Marturana & Woods, 2012; Meadan et al., 2019). The current study was the first, to my knowledge, to

examine and provide preliminary evidence in support of the use of bug-in-ear telecoaching during home visits with Part C EI professionals. Additionally, even though those in the bug-in-ear condition were expected show greater improvements in their home-visiting practices compared to those in the video review condition, findings from the present study demonstrate preliminary support for the use of either method. These findings are somewhat similar to those of Coogle, Ottley, Storie, and colleagues (2018), who could not conclude whether email feedback or bug-in-ear feedback was more effective in changing preservice educators' practices. The telecoaching results of the present study should be interpreted with awareness of the small number of participants (particularly in each condition), as well as factors related to variability in the dosage of the telecoaching intervention, which are discussed further under Limitations and Future Directions. Despite these limitations, results provide preliminary evidence supporting the use of bug-in-ear telecoaching and video review telecoaching with Part C EI professionals during home visits to help improve their home-visiting practices with families of toddlers with or at risk for ASD.

As other researchers have noted, the field of early intervention/early childhood special education (EI/ECSE) continues to most commonly use ineffective professional development approaches, such as trainings or workshops, rather than use approaches that have been shown to be effective, such as coaching (Coogle, Ottley, Rahn, et al., 2018; Snyder, Hemmeter, & McLaughlin, 2011). Even though trainings and workshops are ways to provide professional development opportunities to the masses in a time- and cost-efficient manner, they most often change knowledge over practice and the literature consistently points to coaching as a recommended approach to professional development (e.g., Artman-Meeker et al., 2015; Joyce & Showers, 2002; Rush & Shelden, 2011). Furthermore, recent research has shown that distance

coaching, or telecoaching, is another effective approach to EI/ECSE professional development (e.g., Coogle, Ottley, Rahn, et al., 2018; Coogle, Nagro, et al., 2019; Ottley et al., 2017), and as mentioned previously, telecoaching serves as a time- and cost-efficient means to provide feedback and supervision and to more easily reach those in rural and underserved communities. Despite limitations to the present study, the findings suggest that telecoaching is a community-viable and feasible means to support EI professionals' use of recommended practices from a distance, in a relatively short period of time and with a limited number of sessions overall. These findings are also supported by EI professionals' positive responses in their post-telecoaching interviews, which are discussed further in the following section. Because neither telecoaching method was determined superior over the other, results also suggest the possibility for either method to be used depending on the needs of the community. For example, the video review condition is a feasible option for extremely rural areas where families do not have access to wireless Internet, as EI professionals in the bug-in-ear condition of the present study used families' home Internet to connect to the telecoach. On the other hand, the bug-in-ear condition is possibly less stressful and time-consuming than the video review condition, as the video upload process was one of the biggest technology challenges EI professionals reported in their interviews. Also, the telecoaching session for the bug-in-ear condition takes place during the EI professionals' home visits with the family, requiring only the brief follow-up phone call immediately after the home visit, with no other commitments in between home visits. In the video review condition, on the other hand, EI professionals had their regular home visits with their families, and then the telecoaching sessions took place in between home visits, requiring them to find an extra hour in their already-busy schedules. Thus, bug-in-ear telecoaching might be a more feasible option for those with less time on their plates.

Another consideration to make when comparing bug-in-ear and video review telecoaching is the level of support an EI professional might need based on skill level in a particular area. For example, as EI professionals highlighted in their interviews, the telecoaching intervention focused more on the family consultation practices in the beginning, building the foundational approach to home visiting, and once those practices were more solid, the emphasis switched to social communication strategies (i.e., more specific supports for the caregiver and child). Although EI professionals expressed satisfaction with whichever telecoaching method they received, it is possible that different telecoaching methods could be better suited for these different stages. The bug-in-ear condition could possibly be more useful for those focusing on family consultation practices, as it can provide in-the-moment support for interactions with the caregiver. If necessary, it also provides the opportunity for more intensive support relative to the video review condition, so use during the beginning phases of telecoaching might be most appropriate. The video review condition, on the other hand, allows for EI professionals to step back from the home visit and reflect on their practices without the need for in-the-moment support during active practice. This reflective, higher-level thinking that occurs outside of active practice might be a better fit for EI professionals with more advanced skills, particularly those who have mastered the family consultation stage and are focusing more on the social communication strategies.

Keeping limitations of the present study in mind, findings show that different telecoaching methods can be implemented in the context of regular Part C services to help improve EI professionals' home-visiting practices. The considerations highlighted above are worth exploring further to individualize supports for EI professionals based on their areas of need. Overall, the findings show the potential for the use of telecoaching as an approach to

professional development in early intervention, fitting within and addressing various needs of the Part C system in a feasible and community-viable manner.

Research question #4. Another purpose of this study was to examine EI professionals' descriptions of their home-visiting practices and the telecoaching intervention following their participation in the study. As mentioned previously, hypotheses for this research question were determined throughout the qualitative data analysis process (i.e., through the creation of headlines), in line with an inductive approach and the headline method. Overall, findings showed that EI professionals enjoyed their experience participating in the telecoaching intervention, regardless of condition, and saw improvements in their home-visiting practices across their caseloads and changes in the caregivers and children who participated in the study. EI professionals found the associated materials and technology to be useful, even with technology challenges that many of them faced. Results from the social validity questionnaires that EI professionals and caregivers completed following participation in the telecoaching project further support the qualitative findings. Although few studies exist examining the use of telecoaching with EI professionals in the home environment, results of these studies have found telecoaching intervention to be a socially valid approach to professional development (e.g., Coogle, Larson, et al., 2019; Marturana & Woods, 2012; Meadan et al., 2019), similar to the findings from the present study. Overall, responses in the post-telecoaching interviews and social validity questionnaires in this study further support the findings related to telecoaching described in the previous section and indicate that telecoaching intervention is a socially valid and feasible method of providing support to Part C EI professionals in the community.

Limitations and Future Directions

Results of the present study provided preliminary evidence for the need and feasibility of the use of telecoaching with existing, community-based EI professionals during regular Part C home visits, however, study limitations must be acknowledged. First, this study had a number of limitations related to generalizability theory (Cronbach et al., 1963; Shavelson & Webb, 1981). As mentioned previously, the number of participants in this study was very small, and even though the threat to generalizability was addressed in the data analysis via non-parametric statistics and calculations of standardized-difference effect sizes, the study was still underpowered. Owing to this small sample, results were inconclusive when determining whether one telecoaching method was more effective than the other, and many analyses revealed variability in the data when looking at several differences. Future research should replicate this study with a larger number of participants to determine whether statistically significant differences across the various constructs examined exist on a larger scale.

In addition, only one baseline home visit observation (pre-telecoaching) and one final home visit observation (post-telecoaching) were gathered during data collection, providing a limited and possibly non-representative snapshot of EI professionals' typical home visits at pre-telecoaching and post-telecoaching. Because of the unpredictable nature of Part C home visits, any one home visit is subject to unusual scores. For example, the two participants who had lower post-telecoaching scores than pre-telecoaching scores faced unique circumstances during their final home visit observations. One EI professional's family was unexpectedly moving to a new state, so this final home visit involved a lot of discussion surrounding logistics of the move and transition of services from one state to another. The other EI professional's family participated in a developmental evaluation in the days before the final home visit observation, therefore, the

caregiver shared the details of the evaluation process during most of the visit. Although these are examples of the EI professionals appropriately providing family-level support to the caregivers, these home visits were not fully representative of their typical home-visiting practices. These examples are not intended to excuse the lower post-telecoaching scores, but rather, serve as a reminder that gathering one piece of observational data at one point in time might not always provide the best representation of what is typical. Future research would be strengthened by gathering multiple data points at pre-telecoaching and post-telecoaching to provide a more representative picture of typical home visits with the families.

The Hawthorne effect (Landsberger, 1958) could have also influenced EI professionals' actual practices during the baseline and final home visit observations, as well as during the telecoaching videos, as they knew they were being observed. This is a common problem in early intervention research when gathering observational home-visiting data from a distance, as Krick Oborn and Johnson (2015) also highlight. Even though there was the potential for video bias in the present study, videos are less intrusive than in-person observers, and observations (whether in person or via video) are necessary to provide performance-based feedback. If numerous baseline and final home visit observations are collected in a future study, as suggested previously, then researchers could choose a video to observe at random, possibly diminishing the bias to a slight degree, but for the most part, this limitation remains in observational research.

Recruitment for this study also poses as a threat to generalizability. As highlighted in the results, recruitment moved slowly and the total number of participants was fewer than planned. Those EI professionals who participated provided insight as to why others might not have chosen to participate (e.g., fear of being watched or judged, lack of desire to change, time commitment), and these findings are worth noting as a limitation to the present study. It is possible and very

likely that the EI professionals who chose to participate in the study were eager to participate in a project that served as a professional development opportunity – these are the overachievers, one might say. For example, many shared that they participated in other studies or trainings, suggesting they are inherently more open to participating in such a study compared to their colleagues. This, paired with the possible reasons that others did not want to participate, poses a generalizability problem, particularly when thinking about implementing a telecoaching intervention on a wide scale. Future research should consider examining the implementation of telecoaching as part of a required professional development training within a particular program or system. Although this goes against certain principles of adult learning theory (Bransford et al., 1999; Donovan et al., 1999; Knowles, 1980, 1984), it could help determine whether improvements would be seen across EI professionals, particularly those who were less interested in taking part in the professional development in the first place.

In addition to the recruitment of EI professionals, recruitment of families is another limitation related to generalizability of this study. Among other eligibility criteria, each EI professional was asked to choose a family who had consistent attendance and wireless Internet in the home. Although these criteria were important for implementation of the research project, they limited the families from which EI professionals could choose. Demographic results from the Family-Professional Interaction Questionnaire: Family Version, however, demonstrated some variability in families' backgrounds. On the other hand, the Internet criteria presented a few challenges, such as one family needing to be assigned to the video review condition because they did not have wireless Internet and another family not having their wireless Internet connected during one of the bug-in-ear telecoaching sessions (the EI professional was able to fix this problem by connecting to the telecoach via a personal hotspot). These limitations are worth

highlighting, as they are likely to occur when conducting community-based research, particularly in rural areas with limited access to Internet. Future research should examine this telecoaching intervention without these criteria to determine feasibility and possible solutions on a broader scale.

Additionally, children did not need to have a formal diagnosis of ASD in order to participate in this study, serving as another limitation. In fact, eligibility only required children be at risk for ASD, meaning they needed to show red flags for ASD or display social communication delays. Although information on formal diagnoses was not gathered as part of this study, caregiver report in the Family-Professional Interaction Questionnaire: Family Version indicated the reason for participation in early intervention. Some caregiver responses included ASD, whereas other caregiver responses included developmental delay or speech/language delay. Regardless of formal diagnosis, autism-specific intervention should begin as soon as ASD is suspected (Hyman, Levy, & Myers, 2020; Zwaigenbaum, Bauman, Fein, et al., 2015). Because of the young age of children enrolled in early intervention and the later average age of ASD diagnosis (Baio et al., 2018), EI professionals commonly work with families of children with suspected ASD who do not receive a formal diagnosis until well after they age out of the Part C system. Thus, for community viability purposes, it is important to include children at risk for ASD in such studies, as that is fairly representative of the early intervention population. Future research could examine whether differences exist between families of children diagnosed and those not yet diagnosed, but recommendations for continued research on this at-risk population remain. In addition, developmental concerns and diagnoses should be independently verified via direct observation of researchers in future studies to provide a more comprehensive picture of children's developmental profiles.

Another limitation of the present study was that it did not examine caregiver or child outcomes. A main focus of this study was to examine whether EI professionals' practices improved following their participation in the telecoaching intervention, but telecoaching to promote a caregiver-implemented intervention approach involves the translation of knowledge or skills across multiple levels (e.g., telecoach to EI professional to caregiver to child). Thus, although results showed that EI professionals' home-visiting practices generally improved following participation in the telecoaching intervention, it is unclear whether these changes had a significant impact on caregivers and children. EI professionals reported change in caregivers and children during their post-telecoaching interviews, however, future research should examine outcomes at each of these levels to determine the scope of the effectiveness of telecoaching.

In addition, some limitations existed related to logistics of the telecoaching intervention. Although the plan was for all EI professionals to receive six telecoaching sessions at a rate of two sessions per month, this did not occur due to uncontrollable factors commonly faced in community-based early intervention (e.g., last-minute family cancellations, scheduling conflicts, holidays, services ending for various reasons). Thus, EI professionals' total number of telecoaching sessions ranged from four to six, and the spacing of these sessions varied. Additionally, despite the fact that the protocol called for specific time ranges for home visits and telecoaching sessions, there was still a large amount of variability in the length of home visits and telecoaching sessions. In early intervention, it is often common for home visits to vary in length. Some visits might end earlier than anticipated, for example, if the child expresses a clear readiness to be finished or if the EI professional and caregiver address everything for that visit and wrap up their discussion early. On the other hand, visits might last longer than expected if something important comes up towards the end of the visit, warranting further discussion before

the EI professional leaves. Although this is not ideal, it reflects the nature of home visits and unpredictability of working with children and families in the community. Whereas the length of the home visits influenced the length of the bug-in-ear telecoaching sessions, the follow-up phone calls and the video review telecoaching sessions were also variable in length, owing to how much or little the EI professionals engaged in conversation. The variability in the length of these sessions was primarily found with those EI professionals who were more talkative, extending the amount of time they remained on the call with the telecoach. One EI professional even called the telecoach prior to one of her home visits to have a brief conversation about her plans for the visit before going into the family's home, which was not part of the original telecoaching protocol. Although this variability presents as a limitation related to the dosage of telecoaching, it also demonstrates overall engagement in the telecoaching process, as EI professionals demonstrated a desire to continue the conversations and reflect on their home visits with the telecoach. Future research with more consistent telecoaching dosages across participants would be beneficial in determining the effectiveness of the telecoaching intervention, however, it is important to note that such an approach might be less reflective of actual home visits in the Part C system. Thus, an approach to dosage that best matches the realities of Part C home visiting, similar to that of the present study, might demonstrate results that are more applicable to conducting telecoaching intervention in the community setting.

Another limitation of the telecoaching intervention included the way social communication strategies were measured. As highlighted previously, the main focus of these strategies in this particular study was the match between mention and appropriateness, however, this only provides a limited snapshot of EI professionals' overall understanding and use of the strategies. Future research should examine EI professionals' understanding and use of social

communication strategies in greater detail, possibly taking a closer look at their discussions with caregivers and the ways in which they support caregivers' implementation of these strategies during actual practice.

The post-telecoaching interviews in this study also presented a few limitations. First, the telecoach was the interviewer, so it is possible that EI professionals felt obligated to provide positive responses, owing to their existing relationship with the telecoach. Even though this poses a potential concern, it is also possible that because of the rapport built between the EI professionals and telecoach, the EI professionals felt comfortable enough to be honest in their interviews. For example, their responses related to the technology challenges demonstrate that they did not solely respond to the interview questions in a positive manner and could be honest about the parts of the study that were more challenging or stressful. In addition, post-telecoaching interviews were only conducted with the EI professionals and did not include the caregivers. Because this particular study focused on an intervention to support the EI professionals directly, the purpose of the interviews was to examine the EI professionals' perspectives of the telecoaching intervention. Most of the interview questions would not have applied to the caregivers, as their participation in the telecoaching was indirect. This limits the perspective of those who participated in the study, however, and caregivers' perspectives are particularly important in early intervention, as they fill the role of the consumer. Future research should incorporate post-telecoaching interviews for such a project on a larger scale to examine caregivers' perspectives on the potential impact of the telecoaching intervention, providing further information related to social validity and community viability.

Lastly, problems with reliability and validity pose as limitations to the present study. As highlighted previously, measures of internal consistency demonstrated a lack of reliability of the

caregiver data on the Family-Professional Interaction Questionnaire: Family Version. Results suggest the possibility that caregivers' reports of their EI professionals' actual practices were not necessarily representative of actual practices, but rather showed caregivers' desire to report that their EI professionals used best practices. Ratings on reverse-scored items alluded to this possible explanation of caregivers' reports, which could also influence the overall reliability of these data. Thus, as mentioned previously, caregiver report might not be the most reliable measure of EI professionals' practices. Similar to the present study, future research should examine this construct, comparing caregiver report to EI professional report and actual practice, but on a larger scale to further determine the reliability of caregiver report.

Additionally, although reliability was met for inter-observer agreement (IOA) on the Caregiver-Implemented Intervention Scale, the process of obtaining agreement between the two observers was more challenging than expected. When disagreements were present, the observers were most often in agreement within one point, suggesting only slight discrepancies. Despite having a detailed manual for the Caregiver-Implemented Intervention Scale, it is possible that the practices described, particularly those under coaching and collaborative consultation, remain somewhat subjective. The existing coaching literature supports this notion, as we continue to see a lack of consistency across definitions and interpretations of coaching components (e.g., Kemp & Turnbull, 2014; Lorio et al., 2020; Tomeny et al., in press). To help make the family consultation items less subjective, revisions of the Caregiver-Implemented Intervention Scale should be made to change it from a 4-point scale to a 3-point scale. Although this scale was designed to match the 4-point scale of the Family-Professional Interaction Questionnaire, similar measures of home-visiting practices are commonly rated on a 3-point scale with more concrete ratings, such as *not observed*, *partially observed*, or *observed* (e.g., McWilliam, 2016; Woods,

2018). Future research could examine whether rating changes in the Caregiver-Implemented Intervention Scale and the Family-Professional Interaction Questionnaire make a difference in the overall reliability for scoring these measures. Kappa was also low for the social communication strategies on the Caregiver-Implemented Intervention Scale. This was likely due to the low number of participants and the fact that the measurement system does not expect any set number of implementations. As mentioned previously, future research should more closely examine implementation of social communication strategies and explore additional ways to measure this construct reliably.

As mentioned previously, because items on existing home-visiting measures are not aligned with the items on the measures created for the present study, validation of the new measures by comparison was not possible, making it difficult to determine whether these tools measured the constructs of interest. The present study did not have a sufficient participant size to determine construct validity involving latent variables, such as factor analysis or structural equation modeling, yet the measures can be said to have face validity and content validity because their items stem from the existing literature (e.g., McWilliam, 2010a; Schreibman et al., 2015). The present study examined social validity on both versions of the Family-Professional Interaction Questionnaire via questions about importance, helpfulness, and feasibility of the home-visiting practices and social communication strategies, but future studies should produce additional validity data for these measures across a larger number of participants.

Implications for Practice and Policy

Because this study examined EI professionals' home-visiting practices and the use of different telecoaching methods in the Part C system, the findings have potential implications for community practice and policy in early intervention, keeping the limitations highlighted above in

mind. Although the number of participants was very small, the results related to EI professionals' reported and actual practices suggest that although EI professionals have knowledge of what is considered best practice, a continued need for improvements in professional development remains. Because frequent use of ineffective professional development approaches is common in EI/ECSE (Coogle, Ottley, Rahn, et al., 2018; Snyder, Hemmeter, & McLaughlin, 2011), additional data on EI professionals' reported and actual practices on a larger scale could provide local and state Part C leaders, as well as policy makers, with an improved understanding of the effectiveness of the professional development approaches currently used in early intervention. If gaps still exist between EI professionals' reported and actual practices, as demonstrated with a subset of participants in the current study, changes can and should be made to professional development to support the improvement of home-visiting practices. At the policy level, greater accountability of states' early intervention systems is also recommended to ensure that professional development approaches truly result in changed practices rather than only changed knowledge.

Additionally, reported and actual practice scores also have implications for professional development approaches, particularly when it comes to coaching individual EI professionals. In the present study, the initial results related to reported and actual practices informed the telecoach of the level agreement between these two constructs for each individual participant, giving the telecoach an idea of the EI professionals' overall awareness of their abilities prior to beginning telecoaching. Such information can be extremely useful when establishing a coaching relationship, as it serves as a foundation for consensus building and collaboration between the coach and coachee. Incorporating a component like this into professional development prior to

engaging in coaching can help guide the direction of the initial coaching process to best meet the individualized needs of each coachee.

Despite some variability across analyses, results from this study generally found that EI professionals' home-visiting practices improved from pre-telecoaching to post-telecoaching, regardless of the telecoaching method they received. As suggested previously, further research is needed to examine these telecoaching methods at a larger scale, but these results demonstrate feasibility of the use of telecoaching to support Part C EI professionals in the community. This study shows that changes in EI professionals' practices can be made via different types of distance support in a fairly short amount of time, showing the potential for telecoaching as a community-viable option for professional development in early intervention, as demonstrated in previous research (e.g., Krick Oborn & Johnson, 2015; Marturana & Woods, 2012; Meadan et al., 2019). Based on the findings for the two different telecoaching methods, recommendations for community practice include the possibility of providing different telecoaching methods per the needs of the families (e.g., Internet requirements) or per the needs of the EI professionals (e.g., skill level in a particular area, time availability), as described previously in greater detail. This flexibility allows for adaptation to the needs of a particular community, increasing the likelihood of successful implementation overall. Because of the findings related to EI professionals' possible hesitations to participate in such a telecoaching project, another implication includes EI professionals' overall desire to receive telecoaching as part of professional development. As mentioned previously, one possible recommendation includes embedding telecoaching into a required professional development approach to ensure system-wide participation. Taking such considerations into account, states and programs can help bridge

the gap between recommended and actual practices in early intervention and ASD by providing the best-matched level of support to EI professionals and families as possible.

Conclusion

Despite the small number of participants in this community-based, feasibility study, the findings from the present research contribute to the existing early intervention and ASD literature on reported and actual practices and telecoaching interventions. To my knowledge, this was the first study to examine and provide initial evidence supporting the use of bug-in-ear telecoaching with EI professionals in the Part C system. Although this was a small feasibility study examining practices of existing Part C professionals, results demonstrate that telecoaching is a promising intervention to help improve EI professionals' home-visiting practices in a community-viable manner. The field of early intervention would benefit from future related research to continue examining ways to best support EI professionals in their work with families of toddlers with or at risk for ASD.

REFERENCES

- Able-Boone, H., Sandall, S. R., Loughry, A., & Frederick, L. L. (1990). An informed, family-centered approach to Public Law 99-457: Parental views. *Topics in Early Childhood Special Education, 10*, 100-111.
- Akamoglu, Y., & Meadan, H. (2018). Parent-implemented language and communication interventions for children with developmental delays and disabilities: A scoping review. *Review Journal of Autism and Developmental Disorders, 5*, 294-309.
- Akemoglu, Y., Muharib, R., & Meadan, H. (2019). A systematic and quality review of parent-implemented language and communication interventions conducted via telepractice. *Journal of Behavioral Education*. Advance online publication. doi:10.1007/s10864-019-09356-3
- Amaral, D. G., Anderson, G. M., Bailey, A., Bernier, R., Bishop, S., Blatt, G., . . . Whitehouse, A. (2019). Gaps in current autism research: The thoughts of the Autism Research editorial board and associate editors. *Autism Research 12*, 700-714.
- American Speech-Language-Hearing Association. (2019). Telepractice. Retrieved from <https://www.asha.org/practice-portal/professional-issues/telepractice/>
- Artman-Meeker, K., Fettig, A., Barton, E. E., Penney, A., & Zeng, S. (2015). Applying an evidence-based framework to the early childhood coaching literature. *Topics in Early Childhood Special Education, 35*, 183-196.
- Ashburner, J., Vickerstaff, S., Beetge, J., & Copley, J. (2016). Remote versus face-to-face delivery of early intervention programs for children with autism spectrum disorders: Perceptions of rural families and service providers. *Research in Autism Spectrum Disorders, 23*, 1-14.
- Bailey, D. B., Buysse, V., Edmondson, R., & Smith, T. M. (1992). Creating family-centered services in early intervention: Perceptions of professionals in four states. *Exceptional Children, 58*, 298-309.
- Bailey, D. B., McWilliam, R. A., Darkes, L. A., Hebbeler, K., Simeonsson, R. J., Spiker, D., & Wagner, M. (1998). Family outcomes in early intervention: A framework for program evaluation and efficacy research. *Exceptional Children, 64*, 313-328.
- Bailey, D. B., Simeonsson, R. J., Winton, P. J., Huntington, G. S., Comfort, M., Isbell, P., . . . Helm, J. M. (1986). Family-focused intervention: A functional model for planning,

- implementing, and evaluating individualized family services in early intervention. *Journal of the Division for Early Childhood*, 10, 156-171.
- Baio, J., Wiggins, L., Christensen, D. L., Maenner, M. J., Daniels, J., Warren, Z., . . . Dowling, N. F. (2018). Prevalence of autism spectrum disorder among children aged 8 years: Autism and developmental disabilities monitoring network, 11 sites, United States, 2014. *Morbidity and Mortality Weekly Report Surveillance Summaries*, 67, 1-23.
- Baker-Ericzén, M. J., Brookman-Frazee, L., & Stahmer, A. (2005). Stress levels and adaptability in parents of toddlers with and without autism spectrum disorders. *Research and Practice for Persons With Severe Disabilities*, 30, 194-204.
- Baranek, G. T., Watson, L. R., Turner-Brown, L., Field, S. H., Crais, E. R., Wakeford, L., . . . Reznick, J. S. (2015). Preliminary efficacy of adapted responsive teaching for infants at risk of autism spectrum disorder in a community sample. *Autism Research and Treatment*, 2015, 1-16. doi:10.1155/2015/386951
- Barton, E. E., & Fettig, A. (2013). Parent-implemented interventions for young children with disabilities: A review of fidelity features. *Journal of Early Intervention*, 35, 194-219.
- Barton, E. E., Fuller, E. A., & Schnitz, A. (2016). The use of email to coach preservice early childhood teachers. *Topics in Early Childhood Special Education*, 36, 78-90.
- Barton, E. E., Pokorski, E. A., Gossett, S., Sweeney, E., Qiu, J., & Choi, G. (2018). The use of email to coach early childhood teachers. *Journal of Early Intervention*, 40, 212-228.
- Basu, S., Salisbury, C., & Woods, J. (2007). *Triadic Implementation Evaluation Rating Scale*. University of Illinois–Chicago.
- Behl, D. D., Blaiser, K., Cook, G., Barrett, T., Callow-Heusser, C., Brooks, B. M., . . . White, K. R. (2017). A multisite study evaluating the benefits of early intervention via telepractice. *Infants & Young Children*, 30, 147-161.
- Björck-Åkesson, E., & Granlund, M. (1995). Family involvement in assessment and intervention: Perceptions of professionals and parents in Sweden. *Exceptional Children*, 61, 520-535.
- Blaiser, K. M., Behl, D., Callow-Heusser, C., & White, K. R. (2013). Measuring costs and outcomes of tele-intervention when serving families of children who are deaf/hard-of-hearing. *International Journal of Telerehabilitation*, 5, 3-10.
- Bowen, M. (1966). The use of family theory in clinical practice. *Comprehensive Psychiatry*, 7, 345-374.
- Boyd, B. A., Odom, S. L., Humphreys, B. P., & Sam, A. M. (2010). Infants and toddlers with autism spectrum disorder: Early identification and early intervention. *Journal of Early Intervention*, 32, 75-98.

- Bradshaw, J., Koegel, L. K., & Koegel, R. L. (2017). Improving functional language and social motivation with a parent-mediated intervention for toddlers with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 47*, 2443-2458.
- Bradshaw, J., Steiner, A. M., Gengoux, G., & Koegel, L. K. (2015). Feasibility and effectiveness of very early intervention for infants at-risk for autism spectrum disorder: A systematic review. *Journal of Autism and Developmental Disorders, 45*, 778-794.
- Bransford, J. D., Brown, A. L., & Cocking, R. R. (Eds.). (1999) *How people learn: Brain, mind, experience, and school*. Washington, DC: National Academies Press.
- Brian, J. A., Smith, I. M., Zwaigenbaum, L., & Bryson, S. E. (2017). Cross-site randomized control trial of the Social ABCs caregiver-mediated intervention for toddlers with autism spectrum disorder. *Autism Research, 10*, 1700-1711. doi:10.1002/aur.1818
- Brian, J. A., Smith, I. M., Zwaigenbaum, L., Roberts, W., & Bryson, S. E. (2016). The Social ABCs caregiver-mediated intervention for toddlers with autism spectrum disorder: Feasibility, acceptability, and evidence of promise from a multisite study. *Autism Research, 9*, 899-912.
- Bronfenbrenner, U. (1974). Developmental research, public policy, and the ecology of early childhood. *Child Development, 45*, 1-5.
- Bronfenbrenner, U. (1994). Ecological models of human development. In *International encyclopedia of education* (Vol. 3, 2nd ed.). Oxford: Elsevier.
- Brown, J. A. (2016). Coaching in parent-implemented early communication interventions: Understanding and overcoming individual-level implementation barriers. *Perspectives of the ASHA Special Interest Groups: SIG 1, 1*, 144-153.
- Brown, J. A., & Woods, J. J. (2015). Effects of a triadic parent-implemented home-based communication intervention for toddlers. *Journal of Early Intervention, 37*, 44-68.
- Brown, J. A., & Woods, J. J. (2016). Parent-implemented communication intervention: Sequential analysis of triadic relationships. *Topics in Early Childhood Special Education, 36*, 115-124. doi:10.1177/0271121416628200
- Bruce, B., Letourneau, N., Ritchie, J., Larocque, S., Dennis, C., & Elliott, M. R. (2002). A multisite study of health professionals' perceptions and practices of family-centered care. *Journal of Family Nursing, 8*, 408-429.
- Bruder, M. B. (2000). Family-centered early intervention: Clarifying our values for the new millennium. *Topics in Early Childhood Special Education, 20*, 105-115.
- Bruder, M. B., Catalino, T., Chiarello, L. A., Mitchell, M. C., Deppe, J., Gundler, D., . . . Ziegler, D. (2019). Finding a common lens: Competencies across professional disciplines providing early childhood intervention. *Infants & Young Children, 32*, 280-293.

- Bruder, M. B., & Dunst, C. J. (2005). Personnel preparation in recommended early intervention practices: Degree of emphasis across disciplines. *Topics in Early Childhood Special Education, 25*, 25-33.
- Bruinsma, Y, Minjarez, M., Schreibman, L., & Stahmer, A. (2019). *Naturalistic developmental behavioral interventions for autism spectrum disorder*. Baltimore, MD: Paul H. Brookes.
- Bruns, D. A., & Mogharreban, C. C. (2007). The gap between beliefs and practices: Early childhood practitioners' perceptions about inclusion. *Journal of Research in Childhood Education, 21*, 229-241.
- Buescher, A. V., Cidav, Z., Knapp, M., & Mandell, D. S. (2014). Costs of autism spectrum disorders in the United Kingdom and the United States. *JAMA Pediatrics, 168*, 721-728.
- Campbell, P. H., & Coletti, C. E. (2013). Early intervention provider use of child caregiver-teaching strategies. *Infants & Young Children, 26*, 235-248.
- Campbell, P. H., & Halbert, J. (2002). Between research and practice: Provider perspectives on early intervention. *Topics in Early Childhood Special Education, 22*, 213-226.
- Campbell, P. H., & Sawyer, L. B. (2004). *Natural Environments Rating Scale*. Thomas Jefferson University.
- Campbell, P. H., & Sawyer, L. B. (2007). Supporting learning opportunities in natural settings through participation-based services. *Journal of Early Intervention, 29*, 287-305.
- Campbell, P. H., & Sawyer, L. B. (2009). Changing early intervention providers' home visiting skills through participation in professional development. *Topics in Early Childhood Special Education, 28*, 219-234.
- Casey, A. M., & McWilliam, R. A. (2011). The impact of checklist-based training on teachers' use of the zone defense schedule. *Journal of Applied Behavior Analysis, 44*, 397-401.
- Cason, J. (2009). A pilot telerehabilitation program: Delivering early intervention services to rural families. *International Journal of Telerehabilitation, 1*, 29-37.
- Catalino, T., Chiarello, L. A., Long, T., & Weaver, P. (2015). Promoting professional development for physical therapists in early intervention. *Infants & Young Children, 28*, 133-149.
- Center for Connected Health Policy. (2019). About telehealth. Retrieved from <https://www.cchpca.org/about/about-telehealth>
- Chan, W. L. (2016). The discrepancy between teachers' beliefs and practices: A study of kindergarten teachers in Hong Kong. *Teacher Development, 20*, 417-433.
- Cho, H., Pemberton, C. L., & Ray, B. (2017). An exploration of the existence, value and importance of creativity education. *Current Issues in Education, 20*, 1-20.

- Clark, M. L. E., Vinen, Z., Barbaro, J., & Dissanayake, C. (2018). School age outcomes of children diagnosed early and later with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 48*, 92-102.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. New York, NY: Routledge.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.
- Colyvas, J. L., Sawyer, L. B., & Campbell, P. H. (2010). Identifying strategies early intervention occupational therapists use to teach caregivers. *American Journal of Occupational Therapy, 64*, 776-785.
- Connelly, J. A., Champagne, M., & Manningham, S. (2018). Early childhood educators' perception of their role in children's physical activity: Do we need to clarify expectations? *Journal of Research in Childhood Education, 283-294*.
- Coogle, C. G., Larson, A. L., Ottley, J. R., Root, A. K., Bougher-Muckian, H. (2019). Performance-based feedback to enhance early interventionist's practice and caregiver and child outcomes. *Topics in Early Childhood Special Education, 39*, 32-44.
- Coogle, C. G., Nagro, S., Regan, K., O'Brien, K. M., & Ottley, J. R. (2019). The impact of real-time feedback and video analysis on early childhood teachers' practice. *Topics in Early Childhood Special Education*. Advance online publication. doi:10.1177/0271121419857142
- Coogle, C. G., Ottley, J. R., Rahn, N. L., & Storie, S. (2018). Bug-in-ear eCoaching: Impacts on novice early childhood special education teachers. *Journal of Early Intervention, 40*, 87-103.
- Coogle, C. G., Ottley, J. R., Storie, S., Rahn, N. L., & Kurowski-Burt, A. (2018). Performance-based feedback to enhance preservice teachers' practice and preschool children's expressive communication. *Journal of Teacher Education*. Advance online publication. doi:10.1177/0022487118803583
- Coogle, C. G., Rahn, N. L., & Ottley, J. R. (2015). Pre-service teacher use of communication strategies upon receiving immediate feedback. *Early Childhood Research Quarterly, 32*, 105-115.
- Coogle, C. G., Storie, S., Ottley, J. R., Rahn, N. L., & Kurowski-Burt, A. (2019). Technology-enhanced performance-based feedback to support teacher practice and child outcomes. *Topics in Early Childhood Special Education*. Advance online publication. doi:10.1177/0271121419838624
- Corbin, J., & Strauss, A. (2008). *Basics of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage Publications.

- Crais, E. R., Roy, V. P., & Free, K. (2006). Parents' and professionals' perceptions of the implementation of family-centered practices in child assessments. *American Journal of Speech-Language Pathology, 15*, 365-377.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*, 297-334.
- Cronbach, L. J., Rajaratnam, N., & Gleser, G. C. (1963). Theory of generalizability: A liberalization of reliability theory. *British Journal of Statistical Psychology, 16*, 1963.
- Curran, V. R. (2006). Tele-education. *Journal of Telemedicine and Telecare, 12*, 57-63.
- D'Agostino, S., Douglas, S. N., & Horton, E. (2019). Inclusive preschool practitioners' implementation of naturalistic developmental behavioral intervention using telehealth training. *Journal of Autism and Developmental Disorders*. Advance online publication. doi:10.1007/s10803-019-04319-z
- Darwin, C. (1872). *The descent of man, and selection in relation to sex* (Vol. 2). New York: D. Appleton.
- Davis, N. O., & Carter, A. S. (2008). Parenting stress in mothers and fathers of toddlers with autism spectrum disorders: Associations with child characteristics. *Journal of Autism and Developmental Disorders, 38*, 1278-1291.
- Dawson, G. (2008). Early behavioral intervention, brain plasticity, and the prevention of autism spectrum disorder. *Development and Psychopathology, 20*, 775-803. doi:10.1017/S0954579408000370
- Dawson, G., & Bernier, R. (2013). A quarter century of progress on the early detection and treatment of autism spectrum disorder. *Development and Psychopathology, 25*, 1455-1472.
- Dawson, G., Jones, E., Merkle, K., Venema, K., Lowy, R., Faja, S., . . . Webb, S. J. (2012). Early behavioral intervention is associated with normalized brain activity in young children with autism. *Journal of the American Academy of Child and Adolescent Psychiatry, 51*, 1150-1159. doi:10.1016/j.jaac.2012.08.018
- Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenon, J., . . . Varley, J. (2010). Randomized, controlled trial of an intervention for toddlers with autism: The Early Start Denver Model. *Pediatrics, 125*, e17-e23. doi:10.1542/peds.2009-0958
- DeVeney, S. L., Hagaman, J. L., & Bjornsen, A. L. (2017). Parent-implemented versus clinician-directed interventions for late-talking toddlers: A systematic review of the literature. *Communication Disorders Quarterly, 39*, 293-302.
- Dingfelder, H. E., & Mandell, D. S. (2011). Bridging the research-to-practice gap in autism intervention: An application of diffusion of innovation theory. *Journal of Autism and Developmental Disorders, 41*, 597-609.

- Division for Early Childhood. (2014). DEC recommended practices in early intervention/early childhood special education. Retrieved from <http://www.dec-sped.org/recommendedpractices>
- Donovan, M. S., Bransford, J. D., & Pellegrino, J. W. (Eds.). (1999). *How people learn: Bridging research and practice*. Washington, DC: National Academy Press.
- Downs, R. C., & Downs, A. (2010). Practices in early intervention for children with autism: A comparison with the National Research Council recommended practices. *Education and Training in Autism and Developmental Disabilities*, 150-159.
- Dunning, D. (2011). The Dunning–Kruger effect: On being ignorant of one's own ignorance. *Advances in Experimental Social Psychology*, 44, 247-296.
- Dunst, C. J. (1985). Rethinking early intervention. *Analysis and Intervention in Developmental Disabilities*, 5, 165-201.
- Dunst, C. (2002). Family-centered practices: Birth through high school. *The Journal of Special Education*, 36, 139-147.
- Dunst, C. J., Bruder, M. B., & Espe-Sherwindt, M. (2014). Family capacity-building in early childhood intervention: Do context and setting matter? *School Community Journal*, 24, 37-48.
- Dunst, C. J., Bruder, M. B., Trivette, C. M., & Hamby, D. W. (2005). Young children's natural learning environments: contrasting approaches to early childhood intervention indicate differential learning opportunities. *Psychological Reports*, 96, 231-234.
- Dunst, C. J., Bruder, M. B., Trivette, C. M., & Hamby, D. W. (2006). Everyday activity settings, natural learning environments, and early intervention practices. *Journal of Policy and Practice in Intellectual Disabilities*, 3, 3-10.
- Dunst, C. J., Bruder, M. B., Trivette, C. M., Hamby, D., Raab, M., & McLean, M. (2001). Characteristics and consequences of everyday natural learning opportunities. *Topics in Early Childhood Special Education*, 21, 68-92.
- Dunst, C. J., Hamby, D., Trivette, C. M., Raab, M., & Bruder, M. B. (2000). Everyday family and community life and children's naturally occurring learning opportunities. *Journal of Early Intervention*, 23, 151-164.
- Dunst, C. J., & Trivette, C. M. (2009a). Capacity-building family-systems intervention practices. *Journal of Family Social Work*, 12, 119-143.
- Dunst, C. J., & Trivette, C. M. (2009b). Let's be PALS: An evidence-based approach to professional development. *Infants & Young Children*, 22, 164-176.
doi:10.1097/IYC.0b013e3181abe169

- Dunst, C. J., Trivette, C. M., & Deal, A. G. (Eds.). (1994). *Supporting & Strengthening Families: Methods, Strategies and Practices (Vol. 1)*. Cambridge, MA: Brookline Books.
- Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2006). *Family Support Program Quality and Parent, Family and Child Benefits*. Asheville, NC: Winterberry Press.
- Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2007). Meta-analysis of family-centered helping practices research. *Mental Retardation and Developmental Disabilities Research Reviews*, *13*, 370-378.
- Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2008). *Research Synthesis and Meta-Analysis of Studies of Family-Centered Practices*. Asheville, NC: Winterberry Press.
- Dunst, C. J., Trivette, C. M., Humphries, T., Raab, M., & Roper, N. (2001). Contrasting approaches to natural learning environment interventions. *Infants & Young Children*, *14*, 48-63.
- Early Childhood Technical Assistance (ECTA) Center. (2019). State Part C coordinators. Retrieved from <https://ectacenter.org/contact/ptccoord.asp>
- Edwards, A. L. (1953). The relationship between the judged desirability of a trait and the probability that the trait will be endorsed. *Journal of Applied Psychology*, *37*, 90-93.
- Estes, A., Munson, J., Rogers, S. J., Greenson, J., Winter, J., & Dawson, G. (2015). Long-term outcomes of early intervention in 6-year-old children with autism spectrum disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *54*, 580-587.
- Estes, A., Vismara, L., Mercado, C., Fitzpatrick, A., Elder, L., Greenson, J., . . . Dawson, G. (2014). The impact of parent-delivered intervention on parents of very young children with autism. *Journal of Autism and Developmental Disorders*, *44*, 353-365.
- Fleming, J. L., Sawyer, L. B., & Campbell, P. H. (2011). Early intervention providers' perspectives about implementing participation-based practices. *Topics in Early Childhood Special Education*, *30*, 233-244.
- Francois, J. R., Coufal, K. L., & Subramanian, A. (2015). Student preparation for professional practice in early intervention. *Communication Disorders Quarterly*, *36*, 177-186.
- Friedman, M., Woods, J., & Salisbury, C. (2012). Caregiver coaching strategies for early intervention providers: Moving toward operational definitions. *Infants & Young Children*, *25*, 62-82. doi:10.1097/IYC.0b013e31823d8f12
- García-Grau, P., Martínez-Rico, G., McWilliam, R. A., & Cañadas Pérez, M. (2019). Typical and ideal practices in early intervention in Spain during a transformation process of professional practices. *Journal of Early Intervention*. Advance online publication. doi:10.1177/1053815119859046

- Garrett, J. N., Thorp, E. K., Behrmann, M. M., & Denham, S. A. (1998). The impact of early intervention legislation: Local perceptions. *Topics in Early Childhood Special Education, 18*, 183-190.
- Glaser, B. G., & Strauss, A. L. (2017). *The discovery of grounded theory: Strategies for qualitative research*. New York, NY: Routledge.
- Green, J., Charman, T., Pickles, A., Wan, M. W., Elsabbagh, M., Slonims, V., . . . Jones, E. J. (2015). Parent-mediated intervention versus no intervention for infants at high risk of autism: A parallel, single-blind, randomised trial. *The Lancet Psychiatry, 2*, 133-140.
- Gross, M. (2005). The impact of low-level skills on information-seeking behavior: Implications of competency theory for research and practice. *Reference & User Services Quarterly, 45*, 155-162.
- Hampton, L. H., & Kaiser, A. P. (2016). Intervention effects on spoken-language outcomes for children with autism: A systematic review and meta-analysis. *Journal of Intellectual Disability Research, 60*, 444-463.
- Hanft, B. E., & Pilkington, K. O. (2000). Therapy in natural environments: The means or end goal for early intervention? *Infants & Young Children, 12*, 1-13.
- Hemmeter, M. L., Snyder, P. A., Fox, L., & Algina, J. (2016). Evaluating the implementation of the Pyramid Model for promoting social-emotional competence in early childhood classrooms. *Topics in Early Childhood Special Education, 36*, 133-146.
- Hemmeter, M. L., Snyder, P., Kinder, K., & Artman, K. (2011). Impact of performance feedback delivered via electronic mail on preschool teachers' use of descriptive praise. *Early Childhood Research Quarterly, 26*, 96-109.
- Hume, K., Bellini, S., & Pratt, C. (2005). The usage and perceived outcomes of early intervention and early childhood programs for young children with autism spectrum disorder. *Topics in Early Childhood Special Education, 25*, 195-207.
- Hwang, A. W., Chao, M. Y., & Liu, S. W. (2013). A randomized controlled trial of routines-based early intervention for children with or at risk for developmental delay. *Research in Developmental Disabilities, 34*, 3112-3123.
- Hyman, S. L., Levy, S. E., & Myers, S. M. (2020). Executive summary: Identification, evaluation, and management of children with autism spectrum disorder. *Pediatrics, 145*, 1-5.
- IBM Corp. Released 2017. IBM SPSS Statistics for Macintosh, Version 25.0. [Computer Software]. Armonk, NY: IBM Corp.
- IBM Corp. Released 2019. IBM SPSS Statistics for Macintosh, Version 26.0. [Computer Software]. Armonk, NY: IBM Corp.

- Individuals with Disabilities Education Act (IDEA) Amendments of 1991, 20 U.S.C. § 1400 (1991).
- Individuals with Disabilities Education Improvement Act (IDEA) of 2004, 20 U.S.C. § 1400 (2004).
- Ingber, S., & Dromi, E. (2009). Actual versus desired family-centered practice in early intervention for children with hearing loss. *Journal of Deaf Studies and Deaf Education*, *15*, 59-71.
- Ingersoll, B., & Hambrick, D. Z. (2011). The relationship between the broader autism phenotype, child severity, and stress and depression in parents of children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, *5*, 337-344.
- Ingersoll, B., & Wainer, A. (2013). Initial efficacy of Project ImPACT: A parent-mediated social communication intervention for young children with ASD. *Journal of Autism and Developmental Disorders*, *43*, 2943-2952.
- Ingersoll, B., Wainer, A. L., Berger, N. I., Pickard, K. E., & Bonter, N. (2016). Comparison of a self-directed and therapist-assisted telehealth parent-mediated intervention for children with ASD: A pilot RCT. *Journal of Autism and Developmental Disorders*, *46*, 2275-2284.
- Joyce, B., & Showers, B. (2002). Student achievement through professional development. In B. Joyce & B. Showers (Eds.), *Designing training and peer coaching: Our need for learning*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Kasari, C., Freeman, S., & Paparella, T. (2006). Joint attention and symbolic play in young children with autism: A randomized controlled intervention study. *Journal of Child Psychology and Psychiatry*, *47*, 611-620.
- Kasari, C., Gulsrud, A., Paparella, T., Helleman, G., & Berry, K. (2015). Randomized comparative efficacy study of parent-mediated interventions for toddlers with autism. *Journal of Consulting and Clinical Psychology*, *83*, 554-563. doi:10.1037/a0039080
- Kasari, C., Gulsrud, A. C., Wong, C., Kwon, S., & Locke, J. (2010). Randomized controlled caregiver mediated joint engagement intervention for toddlers with autism. *Journal of Autism and Developmental Disorders*, *40*, 1045-1056. doi:10.1007/s10803-010-0955-5
- Kasari, C., Siller, M., Huynh, L. N., Shih, W., Swanson, M., Helleman, G. S., & Sugar, C. A. (2014). Randomized controlled trial of parental responsiveness intervention for toddlers at high risk for autism. *Infant Behavior and Development*, *37*, 711-721. doi:10.1016/j.infbeh.2014.08.007
- Kashinath, S., Woods, J., & Goldstein, H. (2006). Enhancing generalized teaching strategy use in daily routines by parents of children with autism. *Journal of Speech, Language, and Hearing Research*, *49*, 466-485.

- Kashinath, S., & Yu, B. (2018). Embedding intervention strategies within everyday family routines. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 209-219). New York, NY: Springer.
- Kelso, G. L., Fiechtl, B. J., Olsen, S. T., & Rule, S. (2009). The feasibility of virtual home visits to provide early intervention: A pilot study. *Infants & Young Children, 22*, 332-340.
- Kemp, P., & Turnbull, A. P. (2014). Coaching with parents in early intervention: An interdisciplinary research synthesis. *Infants & Young Children, 27*, 305-324.
- Kerr, M. E., & Bowen, M. (1988). *Family evaluation*. New York, NY: W. W. Norton & Company, Inc.
- Knowles, M. S. (1980). *The modern practice of adult education: From pedagogy to andragogy* (2nd ed.). New York, NY: Cambridge Books.
- Knowles, M. S. (1984) *Andragogy in action*. San Francisco, CA: Jossey-Bass.
- Koegel, R. L., & Koegel, L. K. (2006). Pivotal response treatments for autism: Communication, social & academic development. Baltimore, MD: Paul H Brookes.
- Koegel, L. K., Singh, A. K., Koegel, R. L., Hollingsworth, J. R., & Bradshaw, J. (2014). Assessing and improving early social engagement in infants. *Journal of Positive Behavior Interventions, 16*, 69-80.
- Kratochwill, T. R., Hitchcock, J. H., Horner, R. H., Levin, J. R., Odom, S. L., Rindskopf, D. M., & Shadish, W. R. (2013). Single-case intervention research design standards. *Remedial and Special Education, 34*, 26-38.
- Krick Oborn, K. M., & Johnson, L. D. (2015). Coaching via electronic performance feedback to support home visitors' use of caregiver coaching strategies. *Topics in Early Childhood Special Education, 35*, 157-169.
- Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. *Journal of Personality and Social Psychology, 77*, 1121-1134.
- Kucharczyk, S., Odom, S. L., Cox, A. W., Shaw, E., & Sam, A. M. (2018). Supporting parent use of evidence-based practices for infants and toddlers with autism spectrum disorder. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 405-423). New York, NY: Springer.
- Kwon, Y. I. (2004). Early childhood education in Korea: Discrepancy between national kindergarten curriculum and practices. *Educational Review, 56*, 297-312.
- Landa, R. J. (2018). Efficacy of early interventions for infants and young children with, and at risk for, autism spectrum disorders. *International Review of Psychiatry, 30*, 25-39.

- Landsberger, H. A. (1958). *Hawthorne revisited: Management and the worker, its critics, and developments in human relations in industry*. Ithaca, NY: Cornell University.
- Lavelle, T. A., Weinstein, M. C., Newhouse, J. P., Munir, K., Kuhlthau, K. A., & Prosser, L. A. (2014). Economic burden of childhood autism spectrum disorders. *Pediatrics*, *133*, e520-e529.
- LeCompte. M. D., & Preissle, J. (1994). Qualitative research. What it is, what it isn't, and how it's done. In B. Thompson (Ed.), *Advances in social science methodology* (Vol. 3, pp. 141-163). Greenwich, CT: Jai Press.
- Letourneau, N. L., & Elliott, M. R. (1996). Pediatric health care professionals' perceptions and practices of family-centered care. *Children's Health Care*, *25*, 157-174.
- Lieber, J., Capell, K., Sandall, S. R., Wolfberg, P., Horn, E., & Beckman, P. (1998). Inclusive preschool programs: Teachers' beliefs and practices. *Early Childhood Research Quarterly*, *13*, 87-105.
- Locke, J., Olsen, A., Wideman, R., Downey, M. M., Kretzmann, M., Kasari, C., & Mandell, D. S. (2015). A tangled web: The challenges of implementing an evidence-based social engagement intervention for children with autism in urban public school settings. *Behavior Therapy*, *46*, 54-67.
- Lorio, C. M., Romano, M., Woods, J. J., & Brown, J. (2020). A review of problem solving and reflection as caregiver coaching strategies in early intervention. *Infants & Young Children*, *33*, 35-70.
- Maenner, M. J., Shaw, K. A., Baio, J., Washington, A., Patrick, M., DiRienzo, M., . . . Dietz, P. M. (2020). Prevalence of autism spectrum disorder among children aged 8 years: Autism and developmental disabilities monitoring network, 11 sites, United States, 2016. *Morbidity and Mortality Weekly Report Surveillance Summaries*, *69*, 1-12.
- Mahoney, G., O'Sullivan, P., & Dennebaum, J. (1990). A national study of mothers' perceptions of family-focused early intervention. *Journal of Early Intervention*, *14*, 133-146.
- Mandell, D., & Lecavalier, L. (2014). Should we believe the Centers for Disease Control and Prevention's autism spectrum disorder prevalence estimates? *Autism*, *18*, 482-484.
- Marturana, E. R., & Woods, J. J. (2012). Technology-supported performance-based feedback for early intervention home visiting. *Topics in Early Childhood Special Education*, *32*, 14-23.
- McBride, S. L., Brotherson, M. J., Joanning, H., Whiddon, D., & Demmitt, A. (1993). Implementation of family-centered services: Perceptions of families and professionals. *Journal of Early intervention*, *17*, 414-430.
- McBride, S. L., & Peterson, C. (1996) *Home Visit Observation Form*. Iowa State University.

- McBride, S. L., & Peterson, C. (1997). Home-based early intervention with families of children with disabilities: Who is doing what? *Topics in Early Childhood Special Education, 17*, 209-233.
- McCarthy, M., Leigh, G., & Arthur-Kelly, M. (2019). Telepractice delivery of family-centred early intervention for children who are deaf or hard of hearing: A scoping review. *Journal of Telemedicine and Telecare, 25*, 249-260.
- McConachie, H., & Diggle, T. (2007). Parent implemented early intervention for young children with autism spectrum disorder: A systematic review. *Journal of Evaluation in Clinical Practice, 13*, 120-129.
- McDermott, D. R. (2018). Parents as developing adults and developing adult learners. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 169-187). New York, NY: Springer.
- McDuffie, A., Oakes, A., Machalicek, W., Ma, M., Bullard, L., Nelson, S., & Abbeduto, L. (2016). Early language intervention using distance video-teleconferencing: A pilot study of young boys with fragile X syndrome and their mothers. *American Journal of Speech-Language Pathology, 25*, 46-66.
- McLeod, R. H., Kim, S., & Resua, K. A. (2019). The effects of coaching with video and email feedback on preservice teachers' use of recommended practices. *Topics in Early Childhood Special Education, 38*, 192-203.
- McMullen, M. B. (1999). Characteristics of teachers who talk the DAP talk and walk the DAP walk. *Journal of Research in Childhood Education, 13*, 216-230.
- McWilliam, R. A. (2000). It's only natural... to have early intervention in the environments where it's needed. In S. Sandall & M. Ostrosky (Eds.), *Young Exceptional Children Monograph Series No. 2: Natural Environments and Inclusion* (pp. 17-26). Denver, CO: The Division for Early Childhood of the Council for Exceptional Children.
- McWilliam, R. A. (2009). *Engagement, Independence, and Social Relationships (EISR)*. Workshop handout. Siskin Children's Institute, Chattanooga, TN.
- McWilliam, R. A. (2010a). *Routines-based early intervention: Supporting young children with special needs and their families*. Baltimore, MD: Paul H. Brookes.
- McWilliam, R. A. (Ed.). (2010b). *Working with families of young children with special needs*. New York, NY: Guilford Press.
- McWilliam, R. A. (2012). Implementing and preparing for home visits. *Topics in Early Childhood Special Education, 31*, 224-231. doi:10.1177/0271121411426488
- McWilliam, R. A. (2014). The headline method of analyzing qualitative data. Retrieved from <http://naturalenvironments.blogspot.com/search/label/analysis>

- McWilliam, R. A. (2016). *Routines-Based Home Visit Checklist*. The University of Alabama.
- McWilliam, R. A., Lang, L., Vandiviere, P., Angell, R., Collins, L., & Underdown, G. (1995). Satisfaction and struggles: Family perceptions of early intervention services. *Journal of Early Intervention, 19*, 43-60.
- McWilliam, R. A., & Scott, S. (2001). A support approach to early intervention: A three-part framework. *Infants & Young Children, 13*, 55-62.
- McWilliam, R. A., Snyder, P., Harbin, G. L., Porter, P., & Munn, D. (2000). Professionals' and families' perceptions of family-centered practices in infant-toddler services. *Early Education and Development, 11*, 519-538.
- Meadan, H., Angell, M. E., Stoner, J. B., & Daczewitz, M. E. (2014). Parent-implemented social-pragmatic communication intervention: A pilot study. *Focus on Autism and Other Developmental Disabilities, 29*, 95-110.
- Meadan, H., Chung, M. Y., Sands, M. M., & Snodgrass, M. R. (2019). The Cascading Coaching Model for supporting service providers, caregivers, and children. *The Journal of Special Education*. Advance online publication. doi:10.1177/0022466919884070
- Meadan, H., Douglas, S. N., Kammes, R., & Schraml-Block, K. (2018). "I'm a different coach with every family": Early interventionists' beliefs and practices. *Infants & Young Children, 31*, 200-214.
- Meadan, H., Ostrosky, M. M., Zaghlawan, H. Y., & Yu, S. (2009). Promoting the social and communicative behavior of young children with autism spectrum disorders: A review of parent-implemented intervention studies. *Topics in Early Childhood Special Education, 29*, 90-104.
- Meadan, H., Snodgrass, M. R., Meyer, L. E., Fisher, K. W., Chung, M. Y., & Halle, J. W. (2016). Internet-based parent-implemented intervention for young children with autism: A pilot study. *Journal of Early Intervention, 38*, 3-23.
- Meeks, L. J., & Kemp, C. R. (2017). How well prepared are Australian preservice teachers to teach early reading skills? *Australian Journal of Teacher Education, 42*, 1-17.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.
- Nevill, R. E., Lecavalier, L., & Stratis, E. A. (2018). Meta-analysis of parent-mediated interventions for young children with autism spectrum disorder. *Autism, 22*, 84-98.

- Oono, I. P., Honey, E. J., & McConachie, H. (2013). Parent-mediated early intervention for young children with autism spectrum disorders (ASD). *Evidence-Based Child Health: A Cochrane Review Journal*, 8, 2380-2479.
- Oosterling, I., Visser, J., Swinkels, S., Rommelse, N., Donders, R., Woudenberg, T., . . . Buitelaar, J. (2010). Randomized controlled trial of the Focus Parent Training for toddlers with autism: 1-year outcome. *Journal of Autism and Developmental Disorders*, 40, 1447-1458.
- Ottley, J. R., Coogle, C. G., Rahn, N. L., & Spear, C. F. (2017). Impact of bug-in-ear professional development on early childhood co-teachers' use of communication strategies. *Topics in Early Childhood Special Education*, 36, 218-229.
- Ottley, J. R., & Hanline, M. F. (2014). Bug-in-ear coaching: Impacts on early childhood educators' practices and associations with toddlers' expressive communication. *Journal of Early Intervention*, 36, 90-110.
- Ottley, J. R., Piasta, S. B., Coogle, C. G., Spear, C. F., & Rahn, N. L. (2019). Implementation of bug-in-ear coaching by community-based professional development providers. *Early Education and Development*, 30, 400-422.
- Pappas, N. W., McLeod, S., McAllister, L., & McKinnon, D. H. (2008). Parental involvement in speech intervention: A national survey. *Clinical Linguistics & Phonetics*, 22, 335-344.
- Paul, R., & Roth, F. P. (2011). Characterizing and predicting outcomes of communication delays in infants and toddlers: Implications for clinical practice. *Language, Speech, and Hearing Services in Schools*, 42, 331-340.
- Pereira, A. P. D., & Serrano, A. M. (2014). Early intervention in Portugal: Study of professionals' perceptions. *Journal of Family Social Work*, 17, 263-282.
- Petersen, M. F., Cohen, J., & Parsons, V. (2004). Family-centered care: Do we practice what we preach? *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 33, 421-427.
- Peterson, C. A., Luze, G. J., Eshbaugh, E. M., Jeon, H. J., & Kantz, K. R. (2007). Enhancing parent-child interactions through home visiting: Promising practice or unfulfilled promise? *Journal of Early Intervention*, 29, 119-140.
- Pickard, K. E., Kilgore, A. N., & Ingersoll, B. R. (2016). Using community partnerships to better understand the barriers to using an evidence-based, parent-mediated intervention for autism spectrum disorder in a Medicaid system. *American Journal of Community Psychology*, 57, 391-403.
- Prelock, P. A., & Deppe, J. (2015). Speech-language pathology: Preparing early interventionists. *Infants & Young Children*, 28, 150-164.
- Rantala, A., Uotinen, S., & McWilliam, R. A. (2009). Providing early intervention within natural environments: A cross-cultural comparison. *Infants & Young Children*, 22, 119-131.

- Rapport, M. J. K., McWilliam, R. A., & Smith, B. J. (2004). Practices across disciplines in early intervention: The research base. *Infants & Young Children, 17*, 32-44.
- Rieth, S. R., Haine-Schlagel, R., Burgeson, M., Searcy, K., Dickson, K. S., & Stahmer, A. C. (2018). Integrating a parent-implemented blend of developmental and behavioral intervention strategies into speech-language treatment for toddlers at risk for autism spectrum disorder. *Seminars in Speech and Language, 39*, 114-124.
- Rieth, S. R., Stahmer, A. C., & Brookman-Frazee, L. (2018). A community collaborative approach to scaling-up evidence-based practices: Moving parent-implemented interventions from research to practice. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 441-458). New York, NY: Springer.
- Roberts, M. Y., & Kaiser, A. P. (2011). The effectiveness of parent-implemented language interventions: A meta-analysis. *American Journal of Speech-Language Pathology, 20*, 180-199.
- Roberts, M. Y., & Kaiser, A. P. (2012). Assessing the effects of a parent-implemented language intervention for children with language impairments using empirical benchmarks: A pilot study. *Journal of Speech, Language, and Hearing Research, 55*, 1655-1670.
- Roberts, M. Y., & Kaiser, A. P. (2015). Early intervention for toddlers with language delays: A randomized controlled trial. *Pediatrics, 135*, 1-8.
- Roberts, M. Y., Kaiser, A. P., Wolfe, C. E., Bryant, J. D., & Spidalieri, A. M. (2014). Effects of the teach-model-coach-review instructional approach on caregiver use of language support strategies and children's expressive language skills. *Journal of Speech, Language, and Hearing Research, 57*, 1851-1869.
- Rogers, S. J., & Dawson, G. (2010). *Early Start Denver Model for young children with autism: Promoting language, learning, and engagement*. New York, NY: Guilford Press.
- Rogers, S. J., Estes, A., Lord, C., Vismara, L., Winter, J., Fitzpatrick, A., . . . Dawson, G. (2012). Effects of a brief Early Start Denver Model (ESDM)-based parent intervention on toddlers at risk for autism spectrum disorders: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 51*, 1052-1065. doi:10.1016/j.jaac.2012.08.003
- Rogers, S. J., & Talbott, M. R. (2016). Early identification and early treatment of autism spectrum disorder. In R. M. Hodapp & D. J. Fidler (Eds.), *Fifty years of research in intellectual and developmental disabilities* (pp. 233-275). Cambridge, MA: Academic Press.
- Roggman, L. A., Cook, G. A., Innocenti, M. S., Jump, V. K., Christiansen, K., Boyce, L. K., . . . Hallgren, K. (2010). *Home Visit Rating Scales – Adapted and Extended (HOVRS – A+)*. Utah State University.

- Rollins, P. R., Campbell, M., Hoffman, R. T., & Self, K. (2016). A community-based early intervention program for toddlers with autism spectrum disorders. *Autism, 20*, 219-232.
- Romano, M., & Woods, J. (2018). Collaborative coaching with Early Head Start teachers using responsive communication strategies. *Topics in Early Childhood Special Education, 38*, 30-41.
- Romski, M., Sevcik, R. A., Adamson, L. B., Cheslock, M., Smith, A., Barker, R. M., & Bakeman, R. (2010). Randomized comparison of augmented and nonaugmented language interventions for toddlers with developmental delays and their parents. *Journal of Speech, Language, and Hearing Research, 53*, 350-364.
- Rush, D. D., & Shelden, M. L. (2011). *The early childhood coaching handbook*. Baltimore, MD: Paul H. Brookes.
- Salisbury, C., Cambray-Engstrom, E., & Woods, J. (2012). Providers' reported and actual use of coaching strategies in natural environments. *Topics in Early Childhood Special Education, 32*, 88-98. doi:10.1177/0271121410392802
- Salisbury, C., Cambray-Engstrom, E., Woods, J., & Friedman, M. (2008). *Routine and Instructional Strategy Coding Protocol-IL*. Child & Family Development Center, University of Illinois-Chicago.
- Salisbury, C. L., & Cushing, L. S. (2013). Comparison of triadic and provider-led intervention practices in early intervention home visits. *Infants & Young Children, 26*, 28-41.
- Salisbury, C. L., Woods, J., & Copeland, C. (2010). Provider perspectives on adopting and using collaborative consultation in natural environments. *Topics in Early Childhood Special Education, 30*, 132-147.
- Sawyer, B. E., & Campbell, P. H. (2017). Teaching caregivers in early intervention. *Infants & Young Children, 30*, 175-189.
- Schaefer, J. M., & Ottley, J. R. (2018). Evaluating immediate feedback via bug-in-ear as an evidence-based practice for professional development. *Journal of Special Education Technology, 33*, 247-258.
- Scheeler, M. C., Morano, S., & Lee, D. L. (2018). Effects of immediate feedback using bug-in-ear with paraeducators working with students with autism. *Teacher Education and Special Education, 41*, 24-38.
- Scheeler, M. C., Ruhl, K. L., & McAfee, J. K. (2004). Providing performance feedback to teachers: A review. *Teacher Education and Special Education, 27*, 396-407.
- Schertz, H. H., Baker, C., Hurwitz, S., & Benner, L. (2011). Principles of early intervention reflected in toddler research in autism spectrum disorders. *Topics in Early Childhood Special Education, 31*, 4-21.

- Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., . . . Halladay, A. (2015). Naturalistic developmental behavioral interventions: Empirically validated treatments for autism spectrum disorder. *Journal of Autism and Developmental Disorders, 45*, 2411-2428.
- Shavelson, R. J., & Webb, N. M. (1981). Generalizability theory: 1973-1980. *British Journal of Mathematical and Statistical Psychology, 34*, 133-166.
- Siller, M., Hotez, E., Swanson, M., Delavenne, A., Hutman, T., & Sigman, M. (2018). Parent coaching increases the parents' capacity for reflection and self-evaluation: Results from a clinical trial in autism. *Attachment & Human Development, 20*, 287-308.
- Siller, M., Hutman, T., & Sigman, M. (2013). A parent-mediated intervention to increase responsive parental behaviors and child communication in children with ASD: A randomized clinical trial. *Journal of Autism and Developmental Disorders, 43*, 540-555.
- Siller, M., & Morgan, L. (2018a). *Handbook of parent-implemented interventions for very young children with autism*. New York, NY: Springer.
- Siller, M., & Morgan, L. (2018b). Systematic review of research evaluating parent-mediated interventions for young children with autism: Years 2013 to 2015. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 1-21). New York, NY: Springer.
- Simacek, J., Dimian, A. F., & McComas, J. J. (2017). Communication intervention for young children with severe neurodevelopmental disabilities via telehealth. *Journal of Autism and Developmental Disorders, 47*, 744-767.
- Snodgrass, M. R., Chung, M. Y., Biller, M. F., Appel, K. E., Meadan, H., & Halle, J. W. (2017). Telepractice in speech–language therapy: The use of online technologies for parent training and coaching. *Communication Disorders Quarterly, 38*, 242-254.
- Snyder, P., Hemmeter, M. L., & McLaughlin, T. (2011). Professional development in early childhood intervention: Where we stand on the silver anniversary of PL 99-457. *Journal of Early Intervention, 33*, 357-370.
- Stadnick, N. A., Stahmer, A., & Brookman-Frazee, L. (2015). Preliminary effectiveness of Project ImPACT: A parent-mediated intervention for children with autism spectrum disorder delivered in a community program. *Journal of Autism and Developmental Disorders, 45*, 2092-2104.
- Stahmer, A. C. (2007). The basic structure of community early intervention programs for children with autism: Provider descriptions. *Journal of Autism and Developmental Disorders, 37*, 1344–1354.
- Stahmer, A. C., Collings, N. M., & Palinkas, L. A. (2005). Early intervention practices for children with autism: Descriptions from community providers. *Focus on Autism and Other Developmental Disabilities, 20*, 66–79.

- Steiner, A. M., Gengoux, G. W., Klin, A., & Chawarska, K. (2013). Pivotal response treatment for infants at-risk for autism spectrum disorders: A pilot study. *Journal of Autism and Developmental Disorders, 4*, 91-102.
- Stets, J. E., & Burke, P. J. (2000). Identity theory and social identity theory. *Social Psychology Quarterly, 63*, 224-237.
- Stremel, K. & Campbell, P. H. (2007). Implementation of early intervention within natural environments. *Early Childhood Services, 1*, 83-105.
- Stryker, S. (1968). Identity salience and role performance: The importance of symbolic interaction theory for family research. *Journal of Marriage and the Family, 30*, 558-564.
- Stryker, S. (1980). *Symbolic interactionism: A social structural version*. Menlo Park, CA: Benjamin Cummings.
- Sutherland, R., Trembath, D., & Roberts, J. (2018). Telehealth and autism: A systematic search and review of the literature. *International Journal of Speech-Language Pathology, 20*, 324-336.
- Tang, H. N., Chong, W. H., Goh, W., Chan, W. P., & Choo, S. (2012). Evaluation of family-centred practices in the early intervention programmes for infants and young children in Singapore with Measure of Processes of Care for Service Providers and Measure of Beliefs about Participation in Family-Centred Service. *Child: Care, Health and Development, 38*, 54-60.
- Thomas, K. C., Ellis, A. R., McLaurin, C., Daniels, J., & Morrissey, J. P. (2007). Access to care for autism-related services. *Journal of Autism and Developmental Disorders, 37*, 1902-12.
- Thompson, K. M. (1998). Early intervention services in daily family life: Mothers' perceptions of 'ideal' versus 'actual' service provision. *Occupational Therapy International, 5*, 206-221.
- Thompson, L., Lobb, C., Elling, R., Herman, S., Jurkiewicz, T., & Hulleza, C. (1997). Pathways to family empowerment: Effects of family-centered delivery of early intervention services. *Exceptional Children, 64*, 99-113.
- Tomeny, K. R., & McWilliam, R. A. (2018a). *Caregiver-Implemented Intervention Scale*. The University of Alabama.
- Tomeny, K. R., & McWilliam, R. A. (2018b). *Family-Professional Interaction Questionnaire: Family Version*. The University of Alabama.
- Tomeny, K. R., & McWilliam, R. A. (2018c). *Family-Professional Interaction Questionnaire: Professional Version*. The University of Alabama.
- Tomeny, K. R., & McWilliam, R. A. (2018d). *Social Communication Menu*. The University of Alabama.

- Tomeny, K. R., & McWilliam, R. A. (2018e). *Social Validity Questionnaire: Family Version*. The University of Alabama.
- Tomeny, K. R., & McWilliam, R. A. (2018f). *Social Validity Questionnaire: Professional Version*. The University of Alabama.
- Tomeny, K. R., & McWilliam, R. A. (2018g). *Telecoaching Fidelity Checklist*. The University of Alabama.
- Tomeny, K. R., & McWilliam, R. A. (2019). *Caregiver-Implemented Intervention Scale Manual*. The University of Alabama.
- Tomeny, K. R., McWilliam, R. A., & Tomeny, T. S. (in press). Caregiver-implemented intervention for young children with autism spectrum disorder: A systematic review of coaching components. *Review Journal of Autism and Developmental Disorders*. Advance online publication. doi:10.1007/s40489-019-00186-7
- Trivette, C. M., Dunst, C. J., & Hamby, D. W. (2010). Influences of family-systems intervention practices on parent-child interactions and child development. *Topics in Early Childhood Special Education, 30*, 3-19.
- Trivette, C. M., Dunst, C. J., Hamby, D. W., & O'Herin, C. E. (2009). *Characteristics and consequences of adult learning methods and strategies*. Asheville, NC: Winterberry Press.
- Turner-Brown, L., Hume, K., Boyd, B. A., & Kainz, K. (2016). Preliminary efficacy of family implemented TEACCH for toddlers: Effects on parents and their toddlers with autism spectrum disorder. *Journal of Autism and Developmental Disorders, 1-14*. doi:10.1007/s10803-016-2812-7
- U.S. Department of Education. (2016, May). Early intervention program for infants and toddlers with disabilities. Retrieved from <https://www2.ed.gov/programs/osepeip/index.html>
- Vismara, L. A., McCormick, C. E., Wagner, A. L., Monlux, K., Nadhan, A., & Young, G. S. (2018). Telehealth parent training in the Early Start Denver Model: Results from a randomized controlled study. *Focus on Autism and Other Developmental Disabilities, 33*, 67-79.
- Vismara, L. A., McCormick, C., Young, G. S., Nadhan, A., & Monlux, K. (2013). Preliminary findings of a telehealth approach to parent training in autism. *Journal of Autism and Developmental Disorders, 43*, 2953-2969.
- Vismara, L. A., Young, G. S., Stahmer, A. C., Griffith, E. M., Rogers, S. J. (2009). Dissemination of evidence-based practice: Can we train therapists from a distance? *Journal for Autism and Developmental Disorders, 39*, 1636-1651.

- Vismara, L. A., & Rogers, S. J. (2018). Coaching parents of young children with autism. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 191-208). New York, NY: Springer.
- Vismara, L. A., Young, G. S., & Rogers, S. J. (2012). Telehealth for expanding the reach of early autism training to parents. *Autism Research and Treatment*, 2012, 1-12. doi:10.1155/2012/121878
- Vismara, L. A., Young, G. S., & Rogers, S. J. (2013). Community dissemination of the Early Start Denver Model: Implications for science and practice. *Topics in Early Childhood Special Education*, 32, 223-233.
- Vivanti, G., Kasari, C., Green, J., Mandell, D., Maye, M., & Hudry, K. (2018). Implementing and evaluating early intervention for children with autism: Where are the gaps and what should we do? *Autism Research*, 11, 16-23. doi: 10.1002/aur.1900
- Wainer, A. L., Dvortcsak, A., & Ingersoll, B. (2018). Designing for dissemination: The utility of the deployment-focused model of intervention development and testing for parent-mediated intervention. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 425-440). New York, NY: Springer.
- Wainer, A. L., Pickard, K., & Ingersoll, B. R. (2017). Using web-based instruction, brief workshops, and remote consultation to teach community-based providers a parent-mediated intervention. *Journal of Child and Family Studies*, 26, 1592-1602.
- Walton, K. M., & Ingersoll, B. R. (2015). Psychosocial adjustment and sibling relationships in siblings of children with autism spectrum disorder: Risk and protective factors. *Journal of Autism and Developmental Disorders*, 45, 2764-2778.
- Watson, L. R., Nowell, S. W., Crais, E. R., Baranek, G. T., Wakeford, L., & Turner-Brown, L. (2018). Supporting families of infants at-risk for ASD identified through community screening and surveillance. In M. Siller & L. Morgan (Eds.), *Handbook of parent-implemented interventions for very young children with autism* (pp. 25-43). New York, NY: Springer.
- Wetherby, A. M., Guthrie, W., Woods, J., Schatschneider, C., Holland, R. D., Morgan, L., & Lord, C. (2014). Parent-implemented social intervention for toddlers with autism: An RCT. *Pediatrics*, 134, 1084-1093. doi:10.1542/peds.2014-0757
- Woods, J. (2018). *FGRBI Key Indicators Manual* (3rd ed.). Unpublished manual, Communication and Early Childhood Research and Practice Center, Florida State University, Tallahassee, FL.
- Woods, J. J., & Brown, J. A. (2011). Integrating family capacity-building and child outcomes to support social communication development in young children with autism spectrum disorder. *Topics in Language Disorders*, 31, 235-246. doi:10.1097/TLD.0b013e318227fde4

- Woods, J., & Kashinath, S. (2007). Expanding opportunities for social communication into daily routines. *Early Childhood Services, 1*, 137-154.
- Woods, J., Kashinath, S., & Goldstein, H. (2004). Effects of embedding caregiver-implemented teaching strategies in daily routines on children's communication outcomes. *Journal of Early Intervention, 26*, 175-193.
- Woods, J. J., Wilcox, M. J., Friedman, M., & Murch, T. (2011). Collaborative consultation in natural environments: Strategies to enhance family-centered supports and services. *Language, Speech, and Hearing Services in Schools, 42*, 379-392.
- Workgroup on Principles and Practices in Natural Environments. (2008, March). Agreed upon mission and key principles for providing early intervention services in natural environments. Retrieved from http://ectacenter.org/~pdfs/topics/families/Finalmissionandprinciples3_11_08.pdf
- Zinsser, K. M., Shewark, E. A., Denham, S. A., & Curby, T. W. (2014). A mixed-method examination of preschool teacher beliefs about social-emotional learning and relations to observed emotional support. *Infant and Child Development, 23*, 471-493.
- Zwaigenbaum, L., Bauman, M. L., Choueiri, R., Kasari, C., Carter, A., Granpeesheh, D., . . . Fein, D. (2015). Early intervention for children with autism spectrum disorder under 3 years of age: Recommendations for practice and research. *Pediatrics, 136*, S60-S81.
- Zwaigenbaum, L., Bauman, M. L., Fein, D., Pierce, K., Buie, T., Davis, P. A., . . . Wagner, S. (2015). Early screening of autism spectrum disorder: Recommendations for practice and research. *Pediatrics, 136*, S41-S59.
- Zwaigenbaum, L., Bryson, S., Lord, C., Rogers, S., Carter, A., Carver, L., . . . Fein, D. (2009). Clinical assessment and management of toddlers with suspected autism spectrum disorder: Insights from studies of high-risk infants. *Pediatrics, 123*, 1383-1391.
- Zyga, O., Russ, S. W., & Dimitropoulos, A. (2018). The PRETEND Program: Evaluating the feasibility of a remote parent-training intervention for children with Prader-Willi syndrome. *American Journal on Intellectual and Developmental Disabilities, 123*, 574-584.

APPENDIX A:

SOCIAL COMMUNICATION MENU

Social Communication Menu

(Supports selected and adapted from Schreibman et al., 2015)

Arranging the environment

The caregiver sets up the space to promote interaction and communication. This can include placing materials "in sight but out of reach," limiting access to materials, providing materials that require help, and presenting motivating materials. This can also include positioning people in the room.

Following the child's lead

The caregiver pays attention to what the child is interested in and responds to the child's interest. This can include joining the child in what he or she is doing, imitating what the child is doing, and creating learning opportunities within activities the child chooses. In less preferred but necessary activities, the caregiver incorporates the child's interests to increase motivation to participate.

Balancing turns

The caregiver and child physically or verbally interact within routines to promote back-and-forth social exchanges. The number of social interactions should be relatively equal for the caregiver and child, and each should make at least two exchanges.

Prompting language and actions

The caregiver provides a cue to elicit a certain behavior from the child. The caregiver might give visual or verbal choices, model what to do or say within routines, or pause to encourage child initiations or responses. Prompts should be developmentally appropriate, and the caregiver should ensure the target behavior is naturally reinforced.

Expanding the child's focus

When the child seems ready to do something different or more complex than what he or she is doing at the moment (in that routine that day and developmentally), the caregiver adds variability by introducing new skills, materials, or settings.

Schreibman, L., Dawson, G., Stahmer, A. C., Landa, R., Rogers, S. J., McGee, G. G., ... & Halladay, A. (2015). Naturalistic developmental behavioral interventions: Empirically validated treatments for autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 45, 2411-2428.

K. R. Tomeny & R. A. McWilliam, 2018

APPENDIX B:
IRB APPROVAL

THE UNIVERSITY OF ALABAMA* | Office of the Vice President for
Research & Economic Development
Office for Research Compliance

December 18, 2018

Kimberly Tomeny
Dept. of SPEMA
College of Education
Box 870232

Re: IRB Application #: 18-008 "Early Interventionists" Practices with Families of Toddlers with Social Communication Delays"

Dear Kimberly Tomeny:

The University of Alabama IRB has received the revisions requested by the full board on 10/18/18. The board has reviewed the revisions and your protocol is now approved for a one-year period. Please be advised that your protocol will expire one year from the date of approval, 10/18/18.

If your research will continue beyond this date, complete the IRB Renewal Application by the 15th of the month prior to project expiration. If you need to modify the study, please submit the Modification of An Approved Protocol Form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure Form.

Please use reproductions of the IRB approved stamped consent/assent forms to provide to your participants.

Should you need to submit any further correspondence regarding this proposal, please include the assigned IRB application number.

Good luck with your research.

Sincerely,



Joan Barth, PhD
Chair, Non-Medical IRB

APPENDIX C:

CAREGIVER-IMPLEMENTED INTERVENTION SCALE

INSTRUCTIONS:

Choose the rating that best represents the EI professional’s practices throughout the home visit.

RATINGS FOR ITEMS 1-18:

- 1 – *Not present*
- 2 – *Minimally present (many missed opportunities)*
- 3 – *Present but not consistent (some missed opportunities)*
- 4 – *Consistently present*

	RATING
GREETING	
1. EI professional asks the caregiver for updates on how things have been going since the last visit, rather than launching straight into his or her agenda.	
2. EI professional refers to the previous visit’s plan and follows up with the caregiver, rather than creating an agenda on the spot.	
ROUTINES	
3. EI professional discusses or practices with the caregiver routines that are a natural part of the family’s daily life, rather than “clinical” or abnormal activities.	
4. EI professional discusses or practices with the caregiver child skills in the context of routines, rather than in the abstract, without context.	
5. EI professional and caregiver use existing materials in the family’s home, rather than materials the professional brought in.	
COACHING & COLLABORATIVE CONSULTATION	
6. EI professional focuses on the caregiver’s priorities for the child and family, rather than his or her own priorities.	
7. EI professional interacts with the caregiver or with the caregiver and child, rather than primarily with the child.	

8. EI professional gathers information by asking what the child does and what the caregiver does in routines, rather than assuming how routines go and giving unsolicited advice.	
9. If the caregiver chose a child skill to address on this visit, EI professional facilitates interaction between the caregiver and child, rather than immediately demonstrating with the child or talking to the caregiver without an opportunity to practice.	
10. EI professional provides ample opportunity for the caregiver to give ideas, opinions, strategies, or solutions, rather than “thinking for the caregiver” or telling the caregiver what will work best.	
11. EI professional checks on the feasibility of the caregiver’s ability to carry out agreed upon strategies, rather than assuming that, because the caregiver agreed that the strategy might be a good one, he or she perceived it to be doable.	
12. EI professional gives only as much help as the caregiver or child needs (similar to least-to-most prompting), rather than providing too much or too little support.	
WRAP-UP	
13. EI professional and caregiver review what occurred during the visit, rather than the professional’s leaving with no review.	
14. EI professional and caregiver discuss what will occur between visits, rather than no one making a commitment to any action.	
15. EI professional and caregiver discuss a focus for the next visit, rather than no plan.	
RAPPORT BUILDING	
16. EI professional is friendly with the family, rather than formal.	
17. EI professional is overtly positive about the child <i>and</i> caregiver, not only the child.	
18. EI professional responds to family concerns, rather than sticking only to his or her agenda.	
TOTAL SCORE	
	___/72

SOCIAL COMMUNICATION STRATEGIES		YES (1) /NO (0)
<p>Arranging the environment – The caregiver sets up the space to promote interaction and communication. This can include placing materials “in sight but out of reach,” limiting access to materials, providing materials that require help, and presenting motivating materials. This can also include positioning people in the room.</p>	Did the EI professional and caregiver discuss this strategy?	
	Was the discussion of this strategy appropriate?	
<p>Following the child’s lead – The caregiver pays attention to what the child is interested in and responds to the child’s interest. This can include joining the child in what he or she is doing, imitating what the child is doing, and creating learning opportunities within activities the child chooses. In less preferred but necessary activities, the caregiver incorporates the child’s interests to increase motivation to participate.</p>	Did the EI professional and caregiver discuss this strategy?	
	Was the discussion of this strategy appropriate?	
<p>Balancing turns – The caregiver and child physically or verbally interact within routines to promote back-and-forth social exchanges. The number of social interactions should be relatively equal for the caregiver and child, and each should make at least two exchanges.</p>	Did the EI professional and caregiver discuss this strategy?	
	Was the discussion of this strategy appropriate?	
<p>Prompting language and actions – The caregiver provides a cue to elicit a certain behavior from the child. The caregiver might give visual or verbal choices, model what to do or say within routines, or pause to encourage child initiations or responses. Prompts should be developmentally appropriate, and the caregiver should ensure the target behavior is naturally reinforced.</p>	Did the EI professional and caregiver discuss this strategy?	
	Was the discussion of this strategy appropriate?	
<p>Expanding the child’s focus – When the child seems ready to do something different or more complex than what he or she is doing at the moment (in that routine that day and</p>	Did the EI professional and caregiver discuss this strategy?	

developmentally), the caregiver adds variability by introducing new skills, materials, or settings.	Was the discussion of this strategy appropriate?	
TOTAL SCORE		___/10

APPENDIX D:

EISR

EIEIO

Evidence-based International
Early Intervention Office

EISR

ENGAGEMENT, INDEPENDENCE, SOCIAL RELATIONSHIPS

Engagement

- How does the child participate in this routine?
- How does the child spend most of his or her time?
- How sophisticated is the child's engagement?
 - Nonengaged?
 - Passive attention?
 - Repetitive behavior?
 - Differentiated behavior?
 - Solving problems?
 - Following the conventions of the routine?

Independence

- What does the child do by him- or herself? What does he or she need help with?
- Can the child be left to participate in this routine without assistance?
- How does the child indicate a need for help?
- How does the child respond when help is given?

Social Relationships

- How does the child communicate during this routine?
- How does he or she respond to communication from others?
- How does he or she express him- or herself?
- How sophisticated is the child's communication?
- What communicative mode does the child use?
- How easy is it for the child to be understood?
- How does the child get along with others during this routine?
- How cooperative is he or she?
- How much does he or she initiate interactions?
- How interested is he or she in others?
- How does he or she respond to correction from adults?
- What kind of correction do adults provide?

R. A. McWilliam (2009)
EISR

APPENDIX E:

SAMPLE EMAIL RECAP

Hi [Participant's Name]

Thanks for a wonderful meeting yesterday! It was fun getting to dive into the ASD strategies and I look forward to seeing where things go with this family. As promised, here's the brief recap from our session:

What's Working Well:

- The mom is able to come up with ideas and strategies on her own (e.g., visiting the bathroom at times other than bath time; using bathroom crayons)
- You are doing a wonderful job interacting with this mom (i.e., using the strategies on the Caregiver-Implemented Intervention Scale)
- You were able to tie the communication surrounding the drink example to other times of the day
- You supported the mom to think about waiting to promote communication across various times of the day

Next Steps:

- Following up with the mom on whether she'd be open to showing you how bath time goes; we discussed some questions that we both still had surrounding bath time and some potential next steps, depending on the answers to those questions
- Building on the request he made for a drink at other times of day (e.g., play time, meals); we discussed arranging the environment and waiting to promote communication

Plan for Next Home Visit:

- The mom expressed wanting to focus on requesting during play time
- Following up on how things are going with bath time and how the bathroom crayons worked
- Following up on wait time during breakfast

Have a wonderful long weekend and I'll see you at 9:00 Eastern (8:00 Central) on Friday, September 6.

Thanks,
[Coach's Name]

APPENDIX F:

CAREGIVER-IMPLEMENTED INTERVENTION SCALE MANUAL

GENERAL RATING GUIDELINES (#1-18):

- **1 – *Not present*:** Items receive a score of 1 if the EI professional does not demonstrate the practice during the visit.
 - The home-visiting practice occurs almost none of the time (or opportunities)
- **2 – *Minimally present (many missed opportunities)*:** Items receive a score of 2 if the EI professional demonstrates the practice to some degree but misses many opportunities.
 - The home-visiting practice occurs about 1/3 of the time (or opportunities)
 - Think small amounts of time
- **3 – *Present but not consistent (some missed opportunities)*:** Items receive a score of 3 if the EI professional demonstrates the practice frequently but continues to miss some opportunities.
 - The home-visiting practice occurs about 2/3 of the time (or opportunities)
 - Think decent amount of time but still room for improvement
- **4 – *Consistently present*:** Items receive a score of 4 if the EI professional demonstrates the practice as described, consistently.
 - The home-visiting practice occurs almost all the time (or opportunities)

SPECIFIC ITEM GUIDELINES (#1-18):

The following guidelines give recommendations for how certain examples would be scored. That being said, the rating guidelines above represent the score that best represents the entire home visit. Please keep both the examples below and the rating guidelines above in mind to provide a score that is representative of the home visit as a whole.

GREETING

- 1. EI professional asks the caregiver for updates on how things have been going since the last visit, rather than launching straight into his or her agenda.**
 - If the caregiver provides this information before the EI professional asks for updates, this item is scored as 4.
 - If the EI professional asks how things have been going but the caregiver doesn't respond in detail (e.g., "Good"), this item is scored as 2.

2. EI professional refers to the previous visit’s plan and follows up with the caregiver, rather than creating an agenda on the spot.

- EI professional **must** refer back to the previous visit’s plan to score this item as 4.
- If there was no plan from the previous visit but the EI professional and caregiver make a collaborative plan for today’s visit, this item is scored as 3.
- If there was no plan from the previous visit and the EI professional makes the plan for the visit, this item is scored as 1.
- If the EI professional and caregiver proceed throughout the visit without a clear focus/plan for today, this item is scored as 1.
- If the EI professional and caregiver discuss updates but do not have a clear focus/plan for today’s visit, this item is scored as 1.

ROUTINES

3. EI professional discusses or practices with the caregiver routines that are a natural part of the family’s daily life, rather than “clinical” or abnormal activities.

- Think of this item as emphasizing normal family life as opposed to the EI professional “abnormalizing” family life.
- If the EI professional and caregiver discuss or practice within play that is clearly a part of the family’s existing routine (as opposed to play constructed by the EI professional), this item is scored as 4.
- If the EI professional and caregiver discuss or practice *artificial, non-functional* activities rather than discuss or practice existing family routines/activities, the item is scored as 2 or 1 (depending on the amount of time or opportunities).
- If the EI professional and caregiver discuss ways to support the child but do not tie the conversation to specific family routines (i.e., times of day), see Item #4.

<i>Examples</i>	<i>Non-Examples</i>
The EI professional and caregiver focus on the child requesting milk during meals.	The EI professional recommends the caregiver practice saying words in the mirror with the child.
The EI professional and caregiver discuss how the caregiver could support the child to walk from his bedroom to the bathroom before bath time.	The EI professional and caregiver have the child practice walking back and forth from one adult to the other.
The caregiver and child play with the child’s favorite puzzle, and the EI professional and caregiver discuss strategies to promote the child’s social communication within this puzzle play.	The EI professional recommends that the caregiver set aside 30 minutes per day to play with her child (i.e., it is not part of the family’s typical routine).

4. EI professional discusses or practices with the caregiver child skills in the context of routines, rather than in the abstract, without context.

- Think of this item as tying the child skill or caregiver strategy to specific times of day.
- If the EI professional and caregiver address goals in the context of active practice in a routine (including play), this item is scored as 4.
- If the EI professional and caregiver do not address goals or have a clear focus when playing with the child (i.e., casually playing with the child), this item is **NOT** scored as

4 (the scoring would then depend on whether they tie discussion/practice during the rest of the visit to specific times of day).

<i>Examples</i>	<i>Non-Examples</i>
The caregiver wants the child to say <i>Mama</i> . The EI professional asks what time(s) of day she would like him to do that (e.g., to request to be picked up at the end of bath time).	The EI professional and caregiver discuss strategies to support the child to say <i>Mama</i> , but they do not tie it back to any specific times of day.

5. EI professional and caregiver use existing materials in the family’s home, rather than materials the professional brought in.

- If the EI professional brings an item into the home to leave with the family and the visit still encompasses existing materials in the family’s home, this item is scored as 3.
- If the EI professional brings an item into the home to leave with the family but the visit doesn’t encompass existing materials in the family’s home, this item is scored as 2.
- If the EI professional brings in a toy bag to use during the visit and leaves it with the family, this item is scored as 2.
- If the EI professional brings in a toy bag to use during the visit and takes the bag with her when she leaves, this item is scored as 1.

COACHING & COLLABORATIVE CONSULTATION

6. EI professional focuses on the caregiver’s priorities for the child and family, rather than his or her own priorities.

- Think of this item as referring to previous conversations about what the caregiver wants or asking about the caregiver’s priorities.
- If the conversation/practice surrounds what the caregiver has expressed is important to her throughout the visit, this item is scored as 4.
- If the conversation/practice surrounds what the caregiver has expressed is important to her but the EI professional set the agenda for the visit, this item is scored as 3 (or lower, depending on the amount of time or opportunities).
- If the EI professional and caregiver are referring to the IFSP goals, this is one way of addressing the caregiver’s priorities. However, the EI professional should check in with the caregiver in some way to make sure this is still a priority for her (rather than assume it is what the caregiver wants to focus on). If the EI professional does not check in, this is scored as a 2 or 1.

<i>Examples</i>	<i>Non-Examples</i>
The caregiver expresses that she wants her child to interact with her when he plays with toys, so the focus of the visit is on social interaction during playtime.	The caregiver expresses that she wants her child to interact with her when he plays with toys, but the EI professional focuses on how the child should be playing more appropriately with toys.
<i>Examples (continued)</i>	<i>Non-Examples (continued)</i>
The caregiver says bath time is really difficult and she would love to know how to make it easier. The EI professional and caregiver discuss what bath time looks like and come up with strategies.	The caregiver says bath time is really difficult and she would love to know how to make it easier. The EI professional says she can’t come to the house in the evenings during bath time and suggests they blow bubbles instead.

<p>The focus of the visit is on what the caregiver has expressed as her priorities for today.</p>	<p>The EI professional recommends they focus on the child directing his communication towards others during today's visit.</p>
<p>7. EI professional interacts with the caregiver or with the caregiver and child, rather than primarily with the child.</p>	
<ul style="list-style-type: none"> • Think of this item as supporting the caregiver (caregiver-implemented intervention) vs. direct therapy with the child (clinician-implemented intervention). • If the EI professional primarily interacts with the caregiver, this item is scored as 4. • If the EI professional interacts with the caregiver but also interacts with the child unnecessarily (i.e., interfering with the professional/caregiver interaction, demonstrating with the child when the caregiver could be the one to do this instead), this item is scored as 3 or 2 (depending on the amount of time or opportunities). • If the EI professional primarily interacts with the child (i.e., direct therapy while the caregiver observes), this item is scored as 1. • If the caregiver needs to step out of the room for a moment and the EI professional interacts with the child, this interaction would not count against her for scoring purposes. 	
<p>8. EI professional gathers information by asking what the child does and what the caregiver does in routines, rather than assuming how routines go and giving unsolicited advice.</p>	
<ul style="list-style-type: none"> • If the EI professional asks multiple questions to gain information on what the routine looks like for the child and caregiver (or if the caregiver provides this level of detail voluntarily), this item is scored as 4. • If the EI professional asks multiple questions to gain information <u>while</u> the caregiver is demonstrating the routine in the moment, this item is scored as a 4 (i.e., the EI professional might not need to ask questions about what the caregiver does in the routine because the caregiver is actively demonstrating). • If the EI professional asks multiple questions to gain information on what the routine looks like but it is not clear what the caregiver is doing during this routine, this item is scored as 3. • If the EI professional asks a few questions about the routine and jumps in with recommendations before having a good picture of how the routine goes, this item is scored as 2. • If the EI professional jumps in with recommendations after the caregiver mentions a problem, without gathering information about what the routine looks like, this item is scored as 1. 	
<p>9. If the caregiver chose a child skill to address on this visit, EI professional facilitates interaction between the caregiver and child, rather than immediately demonstrating with the child or talking to the caregiver without an opportunity to practice.</p>	
<ul style="list-style-type: none"> • If the child is not present for the visit (e.g., napping) and there is no opportunity to practice, this item is scored as N/A. 	

- If there are natural opportunities for the caregiver to demonstrate or practice the strategies discussed, the EI professional should optimize on the opportunities rather than solely discuss.
- If there is discussion surrounding routines that are not occurring in the moment (e.g., child’s communication during breakfast), there would not necessarily be demonstration. If there is opportunity for demonstration, the EI professional should support the caregiver within this opportunity (e.g., the child is requesting a snack, so the EI professional provides in-the-moment support to the caregiver regarding communication opportunities).
- If demonstration or practice occur, the EI professional should allow the caregiver to interact with the child rather than the EI professional demonstrating what she would do first.
- Similar to #7, if the EI professional demonstrates with the child unnecessarily (i.e., could support the caregiver to do this instead), this item is scored as 3 or 2 (depending on the amount of time or opportunities).

10. EI professional provides ample opportunity for the caregiver to give ideas, opinions, strategies, or solutions, rather than “thinking for the caregiver” or telling the caregiver what will work best.

- Think of this item as the EI professional asking questions to support the caregiver’s ability to problem solve.
- The EI professional can ultimately give ideas, opinions, strategies, and solutions following collaborative conversation, but it is important for the EI professional to support the caregiver to have the opportunity to think through these things first rather than the EI professional’s jumping in immediately.

<i>Examples</i>	<i>Non-Examples</i>
What do you think might help keep him calm during bath time? What do you think would happen if you were face-to-face with him when reading books? Why do you think he gets upset during diaper change?	You should try _____. _____ is making him upset.

11. EI professional checks on the feasibility of the caregiver’s ability to carry out agreed upon strategies, rather than assuming that, because the caregiver agreed that the strategy might be a good one, he or she perceived it to be doable.

- Think of this as the EI professional’s checking back in with the caregiver after the conversation about a strategy to see if she thinks this is doable (i.e., feasible) within her typical routine.

12. EI professional gives only as much help as the caregiver or child needs (similar to least-to-most prompting), rather than providing too much or too little support.

- Think of this as the EI professional’s providing just the right amount of support that the caregiver needs in that moment.
- This item also ties back to #7 and #9 (i.e., demonstrating or jumping in unnecessarily).

<i>Examples</i>	<i>Non-Examples</i>
The EI professional observes the caregiver while the caregiver rolls the ball back and forth with the child and provides support/guidance as needed.	<p>The EI professional immediately rolls the ball back and forth with the child while the caregiver observes (when the caregiver could have demonstrated how she does it herself). This is an example of too much support.</p> <p>The EI professional doesn’t jump in to provide support when the routine isn’t going well or the caregiver is “stuck.” This is an example of too little support.</p>
<i>Examples</i>	<i>Non-Examples</i>
The EI professional and caregiver mutually discuss and decide upon two strategies that the caregiver wants to try during breakfast.	The EI professional throws out multiple strategies that the caregiver could try during breakfast, and it is not clear which strategies the caregiver will actually try. This is an example of too much support (EI professional making a lot of suggestions without getting the caregiver’s input) and too little support (they don’t “stick the landing” when it comes to deciding on a strategy that the caregiver thinks might work).

WRAP-UP

13. EI professional and caregiver review what occurred during the visit, rather than the professional’s leaving with no review.

- There must be some sort of recap at the end to score this item as 4. This can include a recap of the routines they focused on, the strategies they discussed/practice, or the child’s skills they discussed/observed. The recap does not need to be very specific or lengthy, but there must be *some* sort of recap from this visit before moving forward to talk about what will occur between visits.
- If the EI professional recaps with the caregiver toward the end of the visit, this item is scored as 4.
- If the EI professional recaps with the caregiver after discussion of each routine rather than towards the end of the visit, this item is scored as 3.

14. EI professional and caregiver discuss what will occur between visits, rather than no one making a commitment to any action.

- Think of this item as having a clear plan for what the caregiver (and possibly EI professional) will do between this home visit and the next.
- If the EI professional asks the caregiver what she would like to try between now and the next visit and the caregiver responds, this item is scored as 4.
- If the EI professional recaps with the caregiver on what the caregiver will work on based on what the caregiver expressed he/she wanted to work on earlier in the visit, this item is scored as 4. (Note: This is still collaborative and different than assigning “homework”)
- If the EI professional asks the caregiver what she would like to try between now and the next visit but the caregiver says she doesn’t know, this item is scored as 3.
- If the EI professional *tells* the caregiver what to work on (i.e., homework) rather than asks the caregiver what she would like to do, this item is scored as 2.

15. EI professional and caregiver discuss a focus for the next visit, rather than no plan.

- If the EI professional asks the caregiver what she would like to focus on at the next visit and the caregiver says she doesn’t know (i.e., no plan actually gets made), this item is scored as 3.
- If the EI professional tells the caregiver what the focus will be for the next visit, this item is scored as 2.
- *Note:* The plan for the next visit does not include general logistics like time and date, evaluation details, etc. The plan should refer to what they’re going to discuss or practice at the next visit (e.g., tantrums during outings).

RAPPORT BUILDING

16. EI professional is friendly with the family, rather than formal.

<i>Examples</i>	<i>Non-Examples</i>
EI professional is kind, friendly, and informal (while still remaining professional).	EI professional uses the caregiver’s last name (e.g., Mrs. Jones) or is stiff in her demeanor, using prim and proper language.

17. EI professional is overtly positive about the child *and* caregiver, not only the child.

- If the EI professional is primarily positive about the child and makes *some* positive reference toward the caregiver, this item is scored as a 2 or 3 (depending on the amount of time or opportunities).
- If the EI professional is positive about the child only, this item is scored as a 1.

18. EI professional responds to family concerns, rather than sticking only to his or her agenda.

<i>Examples</i>	<i>Non-Examples</i>
The caregiver expresses concern about the child going to preschool. The EI professional listens to her concerns and engages in conversation surrounding these concerns.	The caregiver expresses concern about the child going to preschool. The EI professional continues to focus on feeding, without acknowledging or addressing the caregiver’s concerns.

SOCIAL COMMUNICATION STRATEGIES GUIDELINES:

- **Did the EI professional mention this strategy in conversation with the caregiver?**
 - In order for this to be scored as 1, the strategy only needs to be mentioned one time.
 - Examples include positive feedback to the caregiver on her use of the strategy, discussion surrounding implementation of this strategy, etc.
- **Was the discussion of this strategy appropriate?**
 - In order for this to be scored as 1, the discussion surrounding the strategy must be appropriate to support accurate implementation of the strategy.
 - The following components must be present: (a) maintaining natural interaction (i.e., not making the interaction artificial for the family); (b) using everyday materials that would naturally be found in the family’s routine; (c) using the natural places where the family would typically be during the routine; and (d) ensuring the strategy matches the social communication need being addressed (i.e., not mentioning a strategy that would be unlikely to meet the child’s problem).
 - If the EI professional and caregiver are discussing arranging the environment to promote communication, but the EI professional’s recommendation is to give the child one Goldfish at a time so the child has to request for every single Goldfish (rather than a more natural, small handful), this would not be appropriate.
 - If the EI professional and caregiver are discussing modeling language for the child within an artificial, non-contextual activity (e.g., in front of the mirror or with flashcards), this would not be appropriate.

SOCIAL COMMUNICATION STRATEGIES
<i>Arranging the environment</i> – The caregiver sets up the space to promote interaction and communication. This can include placing materials “in sight but out of reach,” limiting access to materials, providing materials that require help, and presenting motivating materials. This can also include positioning people in the room.
<i>Following the child’s lead</i> – The caregiver pays attention to what the child is interested in and responds to the child’s interest. This can include joining the child in what he or she is doing, imitating what the child is doing, and creating learning opportunities within activities the child chooses. In less preferred but necessary activities, the caregiver incorporates the child’s interests to increase motivation to participate.

Balancing turns – The caregiver and child physically or verbally interact within routines to promote back-and-forth social exchanges. The number of social interactions should be relatively equal for the caregiver and child, and each should make at least two exchanges.

Prompting language and actions – The caregiver provides a cue to elicit a certain behavior from the child. The caregiver might give visual or verbal choices, model what to do or say within routines, or pause to encourage child initiations or responses. Prompts should be developmentally appropriate, and the caregiver should ensure the target behavior is naturally reinforced.

Expanding the child's focus – When the child seems ready to do something different or more complex than what he or she is doing at the moment (in that routine that day and developmentally), the caregiver adds variability by introducing new skills, materials, or settings.

APPENDIX G:

FAMILY-PROFESSIONAL INTERACTION QUESTIONNAIRE: PROFESSIONAL
VERSION

INSTRUCTIONS: When completing the questions 1-15 **think specifically about your home-visiting practices with the family participating in this study.** On the scale paired with each descriptor, choose the rating that best represents your **typical practice with this family.**

GREETING

1. At the beginning of the visit, I ask the caregiver for updates on how things have been going since the last visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

1a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

2. At the beginning of the visit, I refer to the previous visit's plan and follow up with the caregiver regarding the plan.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

2a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

ROUTINES

3. The caregiver and I discuss or practice activities that are a natural part of the family's daily life.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

3a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

4. The caregiver and I discuss or practice child skills in the context of routines (e.g., supporting communication skills during dressing).

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

4a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

5. I bring outside materials (e.g., toys, bubbles, books) into the family's home.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

5a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

COACHING & COLLABORATIVE CONSULTATION

6. The caregiver and I focus on my priorities for the child.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

6a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

7. I interact primarily with the child during the visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

7a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

8. I gather information from the caregiver by asking what the child does and what the caregiver does in routines.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

8a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

9. When focusing on child skills, I demonstrate strategies with the child before the caregiver practices.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

9a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

10. I provide ample opportunity for the caregiver to give ideas, opinions, strategies, or solutions.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

10a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

11. I assume, if the caregiver agrees that a strategy might be a good one, that he or she thinks it's doable.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

11a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

12. I give only as much help as the caregiver or child needs (e.g., demonstrating only when necessary).

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

12a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

WRAP-UP

13. The caregiver and I review what occurred during the visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

13a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

14. The caregiver and I discuss what will occur between visits.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

14a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

15. The caregiver and I discuss a focus for the next visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

15a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

INSTRUCTIONS: When completing questions 16-20, **think specifically about your home-visiting practices with the family participating in this study.** Each question addresses a specific strategy to support social communication in young children. On the scale paired with each sub-question, choose the rating that best represents your feelings and typical practice with this family.

16. *Arranging the environment* – The adult sets up the space to promote interaction and communication. This can include placing materials “in sight but out of reach,” limiting access to materials, providing materials that require help, and presenting motivating materials. This can also include positioning people in the room.

16a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that’s it (2)
- Pretty familiar (3)
- Very familiar (4)

16b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

16c. How often do you support the caregiver to use this strategy (e.g., via coaching)?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

17. *Following the child’s lead* – The adult pays attention to what the child is interested in and responds to the child’s interest. This can include joining the child in what he or she is doing, imitating what the child is doing, and creating learning opportunities within activities the child chooses. In less preferred but necessary activities, the adult incorporates the child’s interests to increase motivation to participate.

17a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that’s it (2)
- Pretty familiar (3)
- Very familiar (4)

17b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

17c. How often do you support the caregiver to use this strategy (e.g., via coaching)?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

18. Balancing turns – The adult and child physically or verbally interact within routines to promote back-and-forth social exchanges. The number of social interactions should be relatively equal for the adult and child, and each should make at least two exchanges.

18a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that's it (2)
- Pretty familiar (3)
- Very familiar (4)

18b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

18c. How often do you support the caregiver to use this strategy (e.g., via coaching)?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

19. Prompting language and actions – The adult provides a cue to elicit a certain behavior from the child. The adult might give visual or verbal choices, model what to do or say within routines, or pause to encourage child initiations or responses. Prompts should be developmentally appropriate, and the adult should ensure the target behavior is naturally reinforced.

19a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that's it (2)
- Pretty familiar (3)
- Very familiar (4)

19b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

19c. How often do you support the caregiver to use this strategy (e.g., via coaching)?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

20. Expanding the child's focus – When the child seems ready to do something different or more complex than what he or she is doing at the moment (in that routine that day and developmentally), the adult adds variability by introducing new skills, materials, or settings.

20a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that's it (2)
- Pretty familiar (3)
- Very familiar (4)

20b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

20c. How often do you support the caregiver to use this strategy (e.g., via coaching)?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

INSTRUCTIONS: When completing questions 21-22, think specifically about the strategies listed in questions 16-20. On the scale paired with each descriptor, choose the rating that best represents your thoughts and feelings.

21. How helpful do you think these practices are?

- Not helpful (1)
- Somewhat helpful (2)
- Helpful (3)
- Very helpful (4)

22. How *feasible* do you think these practices are?

- Not feasible (1)
- Somewhat feasible (2)
- Feasible (3)
- Very feasible (4)

INSTRUCTIONS: For us to understand the background of the participants in this study, please answer the following questions.

23. How long have you worked with the family participating in this study (in months)? _____

24. What best describes your educational background? (Check all that apply)

- Special education
- Early childhood/child development
- Speech language pathology
- Physical therapy
- Occupational therapy
- Social work
- Other _____

25. What is your role in early intervention service delivery? (Check all that apply)

- Special instructor
- Speech language pathologist
- Physical therapist
- Occupational therapist
- Service coordinator
- Administrator

26. What is your highest level of education?

- High school degree or equivalent (GED)
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral degree

27. What state do you serve?

[Drop-down list]

28. What best describes your employment through the Part C early intervention system?

- Early intervention staff
- Contract/vendor

29. What is your age (in years)? _____

30. How many years of experience do you have **working with children under 3 years of age with disabilities**? _____

APPENDIX H:

FAMILY-PROFESSIONAL INTERACTION QUESTIONNAIRE: FAMILY VERSION

INSTRUCTIONS: When completing the questions 1-15 **think specifically about your early interventionist's home-visiting practices with your family**. On the scale paired with each descriptor, choose the rating that best represents the early interventionist's **typical practice with your family**. *Note: If you have more than one early interventionist, refer only to the early interventionist participating in this study with you.*

GREETING

1. At the beginning of the visit, the early interventionist asks for updates on how things have been going since the last visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

1a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

2. At the beginning of the visit, the early interventionist refers to the previous visit's plan and follows up with me regarding the plan.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

2a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

ROUTINES

3. The early interventionist and I discuss or practice activities that are a natural part of my family's daily life.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

3a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

4. The early interventionist and I discuss or practice child skills in the context of routines (e.g., supporting communication skills during dressing).

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

4a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

5. The early interventionist brings outside materials (e.g., toys, bubbles, books) into my family's home.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

5a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

COACHING & COLLABORATIVE CONSULTATION

6. The early interventionist and I focus on his or her priorities for the child.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

6a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

7. The early interventionist interacts primarily with my child during the visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

7a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

8. The early interventionist gathers information from me by asking what the child does and what I do in routines.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

8a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

9. When focusing on child skills, the early interventionist demonstrates strategies with my child before I practice.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

9a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

10. The early interventionist provides ample opportunity for me to give ideas, opinions, strategies, or solutions.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

10a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

11. The early interventionist assumes, if I agree that a strategy might be a good one, that I think it's doable.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

11a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

12. The early interventionist gives only as much help as my child or I need (e.g., demonstrating only when necessary).

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

12a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

WRAP-UP

13. The early interventionist and I review what occurred during the visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

13a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

14. The early interventionist and I discuss what will occur between visits.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

14a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

15. The early interventionist and I discuss a focus for the next visit.

- Rarely (1)
- Some of the time (2)
- Most of the time (3)
- Almost always (4)

15a. How *important* do you think this practice is?

- Not important (1)
- Somewhat important (2)
- Important (3)
- Very important (4)

INSTRUCTIONS: When completing questions 16-20, **think specifically about your early interventionist's home-visiting practices with your family.** Each question addresses a specific strategy to support social communication in young children. On the scale paired with each sub-question, choose the rating that best represents your feelings and your early interventionist's typical practice with your family. *Note: If you have more than one early interventionist, refer only to the early interventionist participating in this study with you.*

16. *Arranging the environment* – The adult sets up the space to promote interaction and communication. This can include placing materials “in sight but out of reach,” limiting access to materials, providing materials that require help, and presenting motivating materials. This can also include positioning people in the room.

16a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that’s it (2)
- Pretty familiar (3)
- Very familiar (4)

16b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

16c. How often does the early interventionist support you to use this strategy?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

17. *Following the child’s lead* – The adult pays attention to what the child is interested in and responds to the child’s interest. This can include joining the child in what he or she is doing, imitating what the child is doing, and creating learning opportunities within activities the child chooses. In less preferred but necessary activities, the adult incorporates the child’s interests to increase motivation to participate.

17a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that’s it (2)
- Pretty familiar (3)
- Very familiar (4)

17b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

17c. How often does the early interventionist support you to use this strategy?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

18. Balancing turns – The adult and child physically or verbally interact within routines to promote back-and-forth social exchanges. The number of social interactions should be relatively equal for the adult and child, and each should make at least two exchanges.

18a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that's it (2)
- Pretty familiar (3)
- Very familiar (4)

18b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

18c. How often does the early interventionist support you to use this strategy?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

19. Prompting language and actions – The adult provides a cue to elicit a certain behavior from the child. The adult might give visual or verbal choices, model what to do or say within routines, or pause to encourage child initiations or responses. Prompts should be developmentally appropriate, and the adult should ensure the target behavior is naturally reinforced.

19a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that's it (2)
- Pretty familiar (3)
- Very familiar (4)

19b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

19c. How often does the early interventionist support you to use this strategy?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

20. Expanding the child's focus – When the child seems ready to do something different or more complex than what he or she is doing at the moment (in that routine that day and developmentally), the adult adds variability by introducing new skills, materials, or settings.

20a. What is your level of familiarity with this strategy?

- Never heard of it (1)
- Heard of it, but that's it (2)
- Pretty familiar (3)
- Very familiar (4)

20b. How comfortable are you demonstrating or describing this strategy to the caregiver?

- Very uncomfortable (1)
- Somewhat uncomfortable (2)
- Comfortable (3)
- Very comfortable (4)

20c. How often does the early interventionist support you to use this strategy?

- Never (1)
- Rarely (2)
- Sometimes (3)
- Often (4)

INSTRUCTIONS: When completing questions 21-22, think specifically about the strategies listed in questions 16-20. On the scale paired with each descriptor, choose the rating that best represents your thoughts and feelings.

21. How helpful do you think these practices are?

- Not helpful (1)
- Somewhat helpful (2)
- Helpful (3)
- Very helpful (4)

22. How *feasible* do you think these practices are?

- Not feasible (1)
- Somewhat feasible (2)
- Feasible (3)
- Very feasible (4)

INSTRUCTIONS: For us to understand the background of the participants in this study, especially making sure we are not leaving out any types of families, please answer the following questions about you and your child.

23. What is your child's age (in months)? _____

24. What services do your child and family receive through the early intervention system?
(Check all that apply)

- Special instruction
- Speech therapy
- Physical therapy
- Occupational therapy
- Other

25. What is the reason for your child's participation in early intervention? _____

26. Please rate your child's typical participation in everyday events and activities:

- Participates poorly because of difficult behavior
- Participates somewhat because of some difficult behavior
- Participates but with some difficulty
- Participates well, with no problems

27. What is your age (in years)? _____

28. What is your highest level of education?

- Less than a high school diploma
- High school degree or equivalent (GED)
- Associate's degree
- Bachelor's degree
- Master's degree
- Doctoral degree

29. What is your household income?

- Less than \$20,000
- \$20,000 to \$39,999
- \$40,000 to \$59,999
- \$60,000 to \$79,999
- \$80,000 to \$99,999
- Over \$100,000

APPENDIX I:

SOCIAL VALIDITY QUESTIONNAIRE: PROFESSIONAL VERSION

INSTRUCTIONS: Choose the rating that best represents your level of agreement with each item.

1. I enjoyed participating in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

2. Telecoaching is an effective way to support professionals and families in the community.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

3. The technology was easy to use.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

4. My home-visiting practices have become more collaborative and family-centered as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

5. My understanding of supports for children with social communication delays has improved as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

6. The caregiver demonstrated increased confidence in interactions with his or her child as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

7. I use the strategies learned from the telecoaching project with other families on my caseload.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

APPENDIX J:

SOCIAL VALIDITY QUESTIONNAIRE: FAMILY VERSION

INSTRUCTIONS: Choose the rating that best represents your level of agreement with each item.

Note: If you have more than one early interventionist, refer only to the early interventionist participating in this study with you.

1. I enjoyed participating in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

2. Telecoaching is an effective way to support professionals and families in the community.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

3. My early interventionist's home-visiting practices have become more collaborative and family-centered as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

4. My early interventionist's understanding of supports for children with social communication delays has improved as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

5. My knowledge of supports for children with social communication delays has improved as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

6. My confidence in interactions with my child has increased as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

7. I have seen improvements in my child as a result of participation in the telecoaching project.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

8. I use the strategies learned from the telecoaching project in my everyday routines.

- Strongly disagree (1)
- Disagree (2)
- Agree (3)
- Strongly agree (4)

APPENDIX K:

TELECOACHING FIDELITY CHECKLIST

Participant	Date	Session

INSTRUCTIONS:

Choose the answer that best represents the coach's practices during the telecoaching session.

	YES (1) /NO (0)
TELECOACHING FIDELITY CHECKLIST	
1. Coach refers to the plan of the previous session and follows up with EI professional to determine a focus for today's session.*	
2. Coach asks EI professional open-ended questions to encourage reflection.	
3. Coach refers to the child's engagement, independence, or social relationships.	
4. Coach refers to at least one social communication support item from the Social Communication Menu.	
5. Coach refers to at least two home-visiting practices from the Caregiver-Implemented Intervention Scale (1-18).	
6. Coach collaborates with EI professional on what's working well.	
7. Coach collaborates with EI professional on next steps.	
8. Coach collaborates with EI professional about the plan for the next home visit.	
TOTAL SCORE	

* Item #1 is scored as N/A for telecoaching sessions in the video review (asynchronous) condition.

APPENDIX L:
INTERVIEW PROTOCOL

Home-Visiting Practices

1. How have your home-visiting practices changed, if at all, because of your participation in this telecoaching project?
 - a. What do you do now that you didn't do as much before?
 - b. What did you do before that you don't do as much now?
2. How effective was your work with the family during/following participation in the telecoaching project?
3. How did the family respond to your home-visiting practices during/following participation in the telecoaching project?
 - a. Did they do things differently with their child? If so, describe.
4. How has your participation in the telecoaching project influenced your home-visiting practices with other families on your caseload, if at all?

Coaching Process

5. How useful/helpful was the initial webinar?
6. You received [*bug-in-ear* or *video review*] coaching. How useful/helpful was the overall coaching you received?
 - a. Would you have preferred the other kind of coaching?
7. How useful/helpful were the email recaps after each coaching session?
8. How useful/helpful was the technology in facilitating the overall coaching?

Content

9. How useful/helpful were the home-visiting practices on the Caregiver-Implemented Intervention Scale?
10. How useful/helpful were social communication strategies on the Social Communication Menu?

11. Do you feel like we spent more time on home-visiting practices or on social communication strategies?
 - a. Why do you think that was?
12. Have you received any additional training related to these two main content areas? If so, please describe.

Technology

13. How feasible was the technology to use?
14. What challenges did you face with the technology, if any?
15. Overall, did you find the technology to be useful in supporting you and the family on your home visits?

Additional

16. Our recruitment process for this project was slow, and we had a difficult time recruiting the number of early interventionists we hoped to recruit for this project. Why do you think other people didn't sign up to participate?

APPENDIX M:

SAMPLE CONFIRMING/DISCONFIRMING TABLE

<p>Headline: Telecoaching improves EI professionals' approach to home visiting. <i>(Participant identifiers were removed from the table for anonymity)</i></p>	
Confirming	Disconfirming
<ul style="list-style-type: none"> • “I’m definitely trying to ask more questions of the parent, making sure that they have more input in the strategies instead of just throwing things out there” • Getting them more involved, checking on feasibility • Making a plan for the next visit • Used to throw suggestions out more often • “The kind of outline y’all gave really helps with getting the family more involved in the visit instead of just kind of asking questions and wanting us to blanket answer ‘Try this’” • “It’s definitely more family-centered and caregiver-directed” • “I’m definitely asking about feasibility more and taking into account the mom or dad’s concerns and what they wanted to work on that day” • Makes sure she interacts more with the family than the child; if needed, she will interact with the child and then gets the parent to try; coaching the parents more • “My home-visiting practices have changed a lot. A lot in the sense that instead of me being the one that is modeling and demonstrating first, I’m allowing the parent to step in and try the things that they come up with from their own experience with their child” 	<ul style="list-style-type: none"> • Doesn’t think there’s anything that she did before that she doesn’t do now • Feels like she’s sometimes still asking too many questions and doesn’t get to suggestions right away – she’s been trying to work on this more • Doesn’t think there’s anything she did before that she doesn’t do now; thinks this has really been an additive process

- “My overall language style with families. I’ve always kind of taken a more therapist-led approach with my language...now I take more of a parent- and child-driven language approach”
- Asking open-ended questions
- Less hands-on; feels more comfortable stepping back; “only interjecting vocally instead of manually”
- “It’s made me be more thoughtful about what I say and how I say it”
- “It’s given me the ability to listen better to the families and do less talking and more listening”
- “I feel like in the past I’ve – not using this approach – sometimes I was writing the exact same recommendations every single time I saw the family because I just wasn’t seeing the follow through. And it almost seemed like I wasn’t seeing the follow through because the families didn’t see that it worked because it only worked with me. But now it works with them.”
- “It’s changed everything for me. I don’t go in with this idea that they need me to tell them what to do. I don’t go in with that idea at all. I go in with a, ‘Okay, what’s going on? How can I help you?’”
- Instead of showing them what to do, they can analyze and talk through problems and collaboratively come up with what they can try
- “It’s centered on what they need, what they want, and what will work for them instead of what I think.”
- “I plan for my visits with the family during a visit *so* much more than I used to before.”
- Explains how before she would check in on how things were going which would lead into a natural progression of updates and tying it to related outcomes
- “I feel so much more prepared for each visit based on getting to say, ‘Okay, based on our visit last time you said you wanted to focus on this for this visit. Is that still something you want to focus on?’ I’ve never had anyone say no and it’s gone really well.”
- She used to look over outcomes before she went in and chose to focus on certain outcomes that they hadn’t talked about in a while

- “I feel like I almost went in with more of an agenda than I do now – that was maybe my own, not theirs.”
- Now, she shows the parents a matrix or outcomes; doesn’t go in with a pre-set agenda anymore
- “It looked so different. Like my visits before compared to my visits with telecoaching just looked different in terms of planning for the visit and really using sort of like, the strategies. But I feel like they were open with it and great.”
- “I have taken the plan for our next visit into all of my families even though I might not be using the Next Steps Form with all of them. It’s just still a good way to have them thinking ahead.”
- Asking the parents what their priorities are, what they want to focus on
- At the end of the visits, she has started reviewing what they’ve discussed and what the parents have expressed they want to work on
- “It’s almost, like, a fuller picture to me. Like, it’s not just like I flew in and I flew out. You know? It just feels a little more like a complete visit to me.”
- “I think since Day 1 I definitely started applying some of these suggestions and things that we’ve learned through telecoaching to many if not all of my families.”
- “I feel like I have become less dominant in these sessions and a little more open-ended – not necessarily passive, but open-ended to the extent of letting the parent be in the driver seat.”
- Finds herself using the words, “What are your priorities?” in most of her sessions now
- Talks about how the service coordinator and parent write the outcomes; “I think it’s really important to make sure we understand what the parent’s priority is behind that goal”; notices that she’s asking questions to get at these priorities with other families too
- Used to come in with her own agenda; doesn’t do that as much anymore
- Used to come in with certain handouts at certain visits; “Now I’ve learned, you know, maybe that’s not as valuable to that parent. Maybe now, I can come in and kind of gauge where they’re at presently.”
- Used to come in on her first two visits with her educating parents on typical development; noticed that she’s stopped doing that as much

- “I go into the appointment almost free-handed. That way, the parent, I can kind of gauge from the parent what do they really need versus what I think they need”
- “I think I reflect more on what I’m doing”; talks about thinking about what’s happened and digging deeper
- Asking families what they want to focus on for the next visit more (this family and other families)
- “I think it goes back to the reflection, because it often lets me tie in kind of the questions that we would talk about in the after-the-fact coaching – the phone call that we had with you. I would often tie those with other families. So just kind of think about why and just spend more time reflecting after the visit.”
- “I think that it’s made me, with the home visit, it’s made me more aware of different strategies and different things to look for because you were another set of eyes for me. So, I think I’m a little bit maybe more thorough with my questioning”
- Thinks the overall visit is better; tries to get a picture of how things are happening in the home
- Thinks she got better at what she was doing
- Thinks she uses the social communication strategies more now; more aware of pointing out strategies with the family
- “I do think that even though I was coaching and stuff before and asking tons of questions, maybe I am giving a little bit more, I don’t know maybe – like waiting to see what they come up with.”
- Feels 75% more organized and prepared, especially for the ones that she’s videotaping
- “I definitely have used the things that we’ve worked on together in other visits.”
- Feels like she’s thinking more, it’s helped organize her in getting the families to identify what they want to work on and sticking to it to eventually get to the strategies
- “In talking with you, which has been really helpful in giving me permission sometimes, to like, meet the family where they’re really at”
- Feels like she’s more direct with this family than she’s comfortable with, but feels like she has to be
- Way more organized than she used to be
- “I feel like I will kind of redirect to keep bringing back to the topic that we’re talking about more than before. I would have just let go of what we were talking about and

just keep moving on, and then you get nowhere. So, I feel like I keep bringing families back and I feel like that's a good skill to have because that's hard."

- Giving more suggestions than she was before, which she says is also helpful
- Using the matrix when she wasn't before
- "I feel like I've changed a lot in the last couple of months. It doesn't always look pretty but I do feel like I've changed."
- Her goal is to do less coaching and more consulting; the families don't have to come up with answers if they don't have it
- She's not talking as much – wanted to jump in when the family had a hard time deciding what to talk about, but points out if it's not their concern, she's not going to tell them what to focus on
- Getting home-visiting practices solidified; had a good grasp on it but it helped solidify it
- Biggest things she's changed are asking the parent to show her what it looks like in the moment, asking about other times of day, and asking the feasibility question
- Even though she was already asking questions, she kind of came in with her own agenda and says she wouldn't meet the family where they were; says she tried, but she feels like she does a much better job now instead of jumping in with her agenda before asking the questions
- Before she would come in with her own agenda, would bring in a bookbag
- The strategies were more challenging than she thought; mentions who'd have thought that at the beginning you talk about goals and at the end you talk about strategies
- "I think it has become, at least with this case, glaringly aware to me that even though you can verbalize it, you can write it down, you can state it, it's pretty dynamic, you know? They will say they want to do it but really, at the end of the day, it's what – and it's fair – what is most important."
- References asking the parents what they will work on at the end of the visit
- "I think the strategy part, because I would just tell... Usually I'll give strategies, people start writing it down, but I've never summarized it at the end... So I think that's actually really good to see – I mean, do you pick up on it? Is it important to you? Or do you not want to do it?"

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| <ul style="list-style-type: none">• References the Caregiver-Implemented Intervention Scale; she's given more focus to referring to the previous plan and creating an agenda the visit before so that the visits run more smoothly from one to the next• She always checked in with the family but is now checking in specifically on the practices that they agreed they were going to follow through with that week• "I also think I've spent more kind of focus and bring the family's focus back to thinking about, more about how they can do the strategies in the context of like all of their daily routines throughout the day. And I think that's actually been a really helpful part of – that's probably one of the things that I think is making the biggest difference for the family and for the child, thinking about how to embed that in their daily routines."• More focus on putting it back on the mom, more critical thinking (gives examples of questions that she would ask the mom to get her thinking critically)• "This is probably a big change. Just kind of wrapping up really – reviewing what we agreed, you know, like what covered today, having the mom choose what she wants to work on during the week in between, and then kind of making a little, a plan about what she wants to focus on for the following week."• Doesn't think there's anything she did before that she doesn't do now; thinks this has really been an additive process | |
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