THE EFFECTS OF AN ONLINE TRAINING ON PRE-SERVICE SPEECH-LANGUAGE PATHOLOGISTS’ USE OF FAMILY-CENTERED SKILLS.

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by
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ABSTRACT

Despite the recognition that family-centered services are best-practice in Augmentative and Alternative Communication (AAC) services, many speech-language pathologists (SLPs) are lacking in their acquisition and implementation of family-centered skills. Evidence suggests that some SLPs are specifically lacking in their use of relational practices—including vital skills such as active listening, empathy, respect, and effective communication. In order to improve the family-centered skill sets of SLPs, pre-service teaching for SLPs must focus on the importance of family-centered services and strategies to effectively provide such services. In this study, a switching-replications design was used to evaluate the effects of online instruction in a relational skills strategy on pre-service SLPs’ use of family-centered skills. Fifteen pre-service SLPs in their first year of graduate study participated in the online training. The online training taught the students a four-step relational skills strategy (summarized by the acronym, LAFF): (a) Listen, empathize, and communicate respect; (b) Ask questions, and ask permission to take notes; (c) Focus on the issues; and (d) Find a first step. Participants were videotaped during interactions with simulated parents before and after the training. The simulated scenarios were based on actual concerns expressed by families of children with complex communication needs. After a relatively short period of instruction via the online module (i.e., average of 61 minutes), the pre-service SLPs improved, on average, from 4.22 skills demonstrated pre-training to 9.57 skills post-training, providing evidence of the effectiveness of the online instruction. Additionally, two parents viewed the video recordings and completed a questionnaire that asked them to rate their perceptions of the family-centered skills demonstrated by the pre-service SLPs. Before training, the pre-service SLPs were perceived on average, as demonstrating family-centered behaviors “to a small extent” or “to a moderate extent”. Following training, they were perceived by the parents on average, as demonstrating family-centered behaviors “to a moderate extent” or “to a fairly
great extent”. The findings from this study provide support for the use of strategy instruction in an online environment to teach pre-service SLPs family-centered relational skills. In order to improve family-centered AAC services, it is crucial that pre-service SLPs use relational skills when providing services to families, as research suggests this will lead to greater family satisfaction and family well-being. By adopting a family-centered approach, SLPs can increase the likelihood of establishing successful relationships with families and realizing the evidence-based benefits of family-centered services, including positive AAC outcomes. In order to prepare future SLPs and ensure the delivery of family-centered services, future research is necessary, including investigations to evaluate the effects of family-centered instruction for larger groups of SLPs at varying educational levels (i.e., undergraduate, pre-service, in-service), and investigations to determine whether other family-centered skills can be effectively taught through an online environment.

Keywords: family-centered services, pre-service training, relational skills, strategy instruction, online learning, augmentative and alternative communication
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Chapter 1

Introduction

For children with disabilities, the family is the constant in a child’s life. While professionals may come and go, the family grows with the child, sees the child in all settings, and knows the child’s needs best. Considering the interdependence of the family and child, the way in which professionals support children with disabilities and their families has the potential to enhance or to hinder child and family outcomes (Dempsey & Keen, 2005). For many years, professionals functioned in an environment in which they provided services, made the decisions, and controlled the flow of information to families (Parette & Angelo, 1996).

Over the last few decades, growing recognition of the importance of family input has led to a change in the expected model of service delivery. There is now acknowledgement that families are an essential part of service delivery and are key decision makers concerning their child’s services (Dunst, Trivette, & Hamby, 2007). Working effectively with families is no longer an idealist goal of service providers, but rather the expectation (Eichner & Johnson, 2012). Professionals are now expected to deliver family-centered services, which recognize that each member of the family is important and impacts the child’s life. Arango (2011) describes family-centered practice as a partnership—characterized by trust, respect, and open communication—where families and professionals work together to make decisions in the best interest of the child. Allen and Petr (1998) state that family-centered service delivery “…recognizes the centrality of the family in the lives of individuals. It is guided by fully informed choices made by the family and focuses on the family’s strengths and capabilities” (p. 9).

As part of this change from professionally-centered to family-centered services, professional organizations have transformed their philosophies and skill requirements in order to
include families in service provision and develop professionals who can work effectively with families. For speech-language pathologists (SLPs), a group of professionals who serve children with a range of disabilities, it is their role and responsibility to “recognize the essential role that families play in all aspects of service, from assessment through treatment, and the role that families and individuals play as key decision makers, recognized for their knowledge and skills” (American Speech-Language-Hearing Association, n.d.a).

Despite the push for family-centered service provision, evidence suggests that families do not always receive these services from their child’s SLP. SLPs have reported their lack of training in family-centered services and the challenges faced when working with families (Mandak & Light, 2018a, 2018b). In order to improve outcomes for children with disabilities and their families, it is necessary to identify effective ways to improve the family-centered skill sets of SLPs.

Children who use AAC

Although SLPs should provide family-centered services across all children and families, evidence suggests one group in which family-centered services are especially vital, but critically lacking—children with complex communication needs (CCN). While most children develop effective use of speech as a powerful means of communication, children with CCN cannot meet their daily communication needs with speech alone (Beukelman & Mirenda, 2013). SLPs provide services to children with CCN across all ages and across various diagnoses. A child’s lack of speech may be due to developmental disabilities such as intellectual disability, cerebral palsy, or autism spectrum disorders, or to acquired conditions such as traumatic brain injury or stroke (Beukelman & Mirenda, 2013). Regardless of the cause, without access to speech, children’s ability to express wants and needs, interact, and gain information about the world in which they
live is significantly compromised (Romski, Sevcik, Hyatt, & Cheslock, 2002). In order to communicate, children with complex communication needs may rely on augmentative and alternative communication (AAC), including sign language, gestures, computers, and/or picture symbols, in order to access the environment and interact with others (Light, 1997).

For children with CCN, it is well supported that positive AAC outcomes are dependent on the family’s involvement and the development of a successful family-professional partnership (Angelo, 1995; Cress, 2004). Historically, families were not part of the AAC decision making process (Parette, 1996). The professional typically made treatment decisions, while families provided information (Parette & Angelo, 1996). Considering that family members are often the most significant and most frequent communication partners for children who use AAC, they must be involved in making decisions (Granlund, Björck-Akesson, Wilder, & Ylvén, 2008). Many families agree and express their desire to be key members of the AAC decision-making team (Calculator & Black, 2010; McNaughton, Rackensperger, Benedek-Wood, Krezman, Williams, & Light, 2008). When family members are part of the team, and when their routines and patterns of life are considered, there is a greater likelihood that they will assume ownership of the planned interventions (Albin, Lucyshyn, Horner, Flannery, 1996; Parette & Angelo, 1996). These factors all contribute to the growing recognition of the importance of family input and the acknowledgement that families are an integral part of the AAC decision-making process (Bailey, Parette, Stoner, Angell, & Carroll, 2006; Calculator & Black, 2009; Cress, 2004).

**Family-centered AAC services**

Accordingly, it has been recognized as best practice to implement family-centered AAC services (Cress, 2004; Mandak, O’Neill, Light, & Fosco, 2017). A family-centered philosophy recognizes the family as the most important element in a child’s life and considers interventions
in the context of the family. This way of thinking arose out of family-systems theory (Minuchin, 1985), which provides a framework for understanding the interconnectedness of families, and the interactions and roles of family members when a member of the family has a disability (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2015). Rather than viewing a child in isolation, family-centered AAC professionals consider the child as part of a larger set of systems—the family, the community, and society—and they understand that family members are integrally linked with one another (Mandak et al., 2017). By adopting this approach, professionals can increase the likelihood of establishing successful relationships with families and realizing the evidence-based benefits of family-centered services.

Decades of research provide evidence of the benefits of family-centered services as they have been linked to many positive parent, family, and child outcomes (Dunst et al., 2007). A meta-analysis of nearly 50 studies showed that family-centered services resulted in greater family satisfaction with services; stronger self-efficacy beliefs within the family; greater family empowerment; improved family ratings of the helpfulness of supports and resources; improved parent judgements of child behavior, progress, and functioning; and increased family and individual well-being (Dunst et al., 2007). Such positive outcomes were observed across various settings including pediatric practices, early childhood intervention programs, rehabilitation centers, and public schools, highlighting the relevance of family-centered practice across disciplines and settings.

Despite the benefits of family-centered services, many SLPs still adhere to a professionally-centered mindset (Iacono & Cameron, 2009; Mandak & Light, 2018a, 2018b). In a professionally-centered model of service delivery, professionals see themselves as experts, while families are seen as less capable than professionals in knowing what is in the best interest of the child (Dunst, Dunst, Johanson, Trivette & Hamby, 1991). For families with children with CCN, a lack of family-centered services can result in inappropriate AAC systems and a diminished
likelihood of successful communication and positive AAC outcomes (Parette & Angelo, 1996; McNaughton et al., 2008).

**Family-centered skill sets**

It is the role and responsibility of SLPs to provide family-centered services (American Speech-Language-Hearing Association, 2010). In order to deliver such services, SLPs must acquire specific skills to work effectively with children and their families. Over the years, Dunst and colleagues (1996, 2002, 2007) have thoroughly investigated the implementation of family-centered services across settings, the necessary skills to provide such services, and the associated outcomes. Through this research, they have consistently found that there are two distinct subsets of family-centered practices: relational practices and participatory practices (Dunst & Trivette, 1996; Dunst, Trivette, & Hamby, 2007). Relational practices include active and reflective listening, compassion, empathy, respect, and effective communication, as well as maintaining positive beliefs and attitudes toward families, especially those regarding parenting competencies and family strengths (Dunst et al., 2007). Participatory practices include behaviors that actively involve family members in informed choice and decision making. These practices emphasize the use of existing strengths and abilities as well as developing new capabilities needed to be actively involved in their child’s intervention. Professionals that display participatory practices are flexible and responsive to family’s concerns and priorities.

Although relational and participatory practices are both significantly related to positive family-centered outcomes (e.g., greater family satisfaction, greater family empowerment, improved helpfulness of services, increased family and child well-being), each skill set has value-added benefits over the other skill set. For example, relational practices (compared to participatory practices) are more strongly related to a family’s satisfaction with services and
family well-being (Dunst et al., 2007). Participatory practices are more strongly related to parents’ positive judgements of professional supports and services and parenting competence (Dunst et al., 2007). The use of both sets of skills is necessary to provide family-centered services and is what distinguishes a family-centered approach from other service models.

Relational skills

Although both skill sets contribute to a family-centered approach, this study focuses on relational skills specifically. Of the two skill sets, many SLPs assume they are using relational skills adequately (Mandak & Light, 2018a). For example, Mandak and Light surveyed 211 SLPs who served children with autism spectrum disorder and CCN. They found that nearly all the SLPs perceived that they treated parents respectfully all the time. Over 90% of the SLPs felt that they helped parents feel competent most of the time, treated parents as individuals and equals, and ensured that parents had a chance to say what was important to them. Unfortunately, parent perspectives suggest otherwise. In the same study, some of the parents of children with CCN surveyed reported that their child’s SLP did not help them feel competent as parents (57% of parents), did not treat them as equals (44%) or individuals (50%) and did not provide them enough time to talk during interactions (52%) (Mandak & Light, 2018a). Other studies have also found that families report that professionals lacked sensitivity and understanding of family demands (Marshall & Goldbart, 2008). If this core set of relational skills is lacking in AAC service provision, it is unlikely that children and families will realize the benefits of family-centered services.

SLPs’ use of relational skills with families of children with CCN is vital as it is well understood that parenting a child who uses AAC is a significant responsibility, requires a large investment of time and energy, and can potentially create added stress on a family (Angelo, 2000;
Bailey et al., 2006). In order to work effectively and demonstrate sensitivity to these families, SLPs must display the interpersonal behaviors associated with relational skills such as warmth, active listening, empathy, and viewing parents in a positive light.

Hodgetts, Nicholas, Zwaigenbaum, and McConnell (2013) interviewed 19 parents of children with autism, and found that the display of relational skills was considered essential. When asked “What supports or services had the most positive impact for you?” parents almost always responded that it was the personal qualities of professionals that made services positive. Multiple parents reported difficulties working with professionals, such as those who “were not receptive to us, working with us, and sharing ideas” (p. 144). The development of rapport and the personal qualities of professionals were considered more important than service characteristics for many of the parents.

These parent perspectives highlight the unique contribution that relational skills may have during the beginning stages of the SLP-parent relationship. During early meetings between an SLP and family, the family is likely to form positive or negative judgements about the likelihood of a future relationship (i.e., Predicted Outcome Value Theory; Sunnafrank, 1986). If families form positive judgments, there is a greater likelihood that they will communicate more with the SLP and seek more information. Conversely, if they form a negative judgment, communication and relationship development will likely be limited (Sunnafrank & Ramirez, 2004). The importance of relational skills cannot be understated as they will not only help professionals build trust and rapport with families but research suggests that they will also lead to greater family satisfaction and family well-being (Dunst et al., 2007). If families are satisfied, there is a higher likelihood of developing a successful and collaborative partnership.
Pre-service training

One of the key barriers to family-centered AAC services is the lack of pre-service training in family-centered services for SLPs. Traditional preparation of SLPs has focused on the medical deficit-based model and the development of technical skills in order to treat the client (Beatson, 2006; Phillips & Mendel, 2008). In order to be an effective clinician, the development of technical skills is not enough. SLPs must learn to implement a strengths-based model rooted in family-centered care in order to best utilize their technical expertise and provide effective services to families (Hammer, 1998; Beatson, 2006). SLPs must adopt a family-centered philosophy as the foundation upon which to base their clinical decision-making (Bruce, DiVenere, & Bergeron, 1998).

Unfortunately, the research suggests that many SLPs do not receive family-centered training in their pre-service programs. For example, in a recent survey study of 211 SLPs who served children with ASD who used AAC, more than half reported that they have received no training in family-centered service provision (Mandak & Light, 2018a). These SLPs reported a lack of both family-oriented coursework and clinical opportunities to work with families.

Another group of SLPs who participated in an online focus group also shared their varying experiences related to pre-service training in family-centered services (Mandak & Light, 2018b). Although five (38%) of the SLPs reported that they had completed coursework in counseling and interviewing, none of the SLPs reported graduate coursework specifically focused on family-centered services. Some shared that they were able to work with families during clinical placements, while others reported a lack of exposure to working with families. Despite the variation, all of the SLPs agreed that their graduate training could have been improved to better prepare them to more effectively work with families. When offering suggestions to improve graduate training, some of the SLPs in this study reported that the relational skill of
active listening was necessary to work with families and emphasized that this skill should be targeted in pre-service training (Mandak & Light, 2018b). For example, one SLP described the importance of active listening:

I think over time I have become better at eliciting information from families through active listening. When I was a newer SLP, I was probably a bit more concerned with demonstrating my knowledge. Parents need to be heard. They need their experiences and concerns validated.

Another SLP agreed and shared:

I agree with the "active listening" aspect. That is something that I learned was a valuable tool (after I graduated). Active listening is probably the hallmark of interacting with parents. It helps them feel heard and validated, and it helps the clinician gain a bigger picture of other influences that may be contributing to the client's speech/language difficulties or progress.

These SLPs highlighted active listening as a valuable tool in working with families, but one that had not been emphasized in their pre-service training.

Given the importance of family-centered services generally and relational skills specifically, it is urgently necessary to determine how to best teach SLPs the necessary knowledge and skills to deliver effective family-centered services. Considering the benefits of demonstrating relational skills, pre-service SLPs can and should learn these skills during their training in order to be effective family-centered professionals. Targeting skills that extend across populations and contexts, such as relational skills, may be the most parsimonious way to integrate family-centeredness into graduate training (Brown & Woods, 2011).

The pre-service programs that prepare SLPs must take on the responsibility of preparing their students to become family-centered clinicians. They must ensure that the knowledge and skills necessary to deliver family-centered services are infused throughout the training curriculum. Considering the American Speech Language Hearing Association’s (ASHA) stance on the importance of family inclusion and collaboration (ASHA, 2010, 2016), it is important that programs promote a family-centered culture. By adopting a family-centered culture, it is the goal
that students will recognize the significant role that families play in all aspects of services and begin to develop family-centered competencies. In order to build those competencies, novice clinicians may benefit most initially from skills which can extend across all populations and settings by acquiring evidence-based relational skills.

**Evidence-based relational skills**

In order to provide effective family-centered AAC services, SLPs may need guidance on how to demonstrate specific relational skills (e.g., how to show empathy). To identify the most important relational skills, two previously published reviews of evidence-based family-centered measures were referenced (Dunst, Trivette, & Hamby, 2006; Porter et al., 2012). Dunst et al. (2006) reviewed measurement scales used across 18 studies designed to measure program quality and the impact of family-centered services on study participants. Out of 47 instruments, 4 were used to measure the family-centered practices of professionals, and were thus considered appropriate to use for the identification of key relational skills.

Porter et al. (2012) reviewed existing measurement tools from various fields that all examined family-provider relationships. Out of 62 instruments reviewed, the authors identified 43 which included items related to relational skills.

The 47 instruments (see Appendix A) from both Dunst et al. (2006) and Porter et al. (2012) were reviewed to determine key relational skills. Instruments were included for review if they (a) were designed for use with any age group, (b) could be used in any setting, (c) were designed for assessing family-centered services, and (d) published psychometric information (i.e., established the tool’s reliability and validity). Instruments were determined to be inappropriate for the identification of important relational skills they (a) were designed for use with a specific age group only (e.g., only relevant for children birth-2 years of age), (b) were designed for use in
a specific setting (e.g., only relevant to the hospital setting); (c) were not assessing the delivery of family-centered services (e.g., “How often do you go to parent-teacher conferences?”); and (d) did not publish psychometric information.

From the two reviews (i.e., Dunst et al., 2006; Porter et al., 2012), six measurement scales met the inclusion criteria. These six tools were designed to measure the demonstration of evidence-based family-centered principles, included psychometric information regarding the reliability and validity of the scales, included relational practice, and were designed to be used across all ages and in all settings.

a) The Measures of Processes of Care-56 (King, Rosenbaum, King, 1995)
b) Helpgiving Practices Scale (Trivette & Dunst, 1994)
c) Family-Centered Professional Behavior Scale (Petr & Allen, 1995)
d) Enabling Practices Scale (Dempsey, 1995)
e) Family-Centered Practices Scale – Extended Version (Dunst & Trivette, 2004)
f) Family Professional Partnership Tool (Summers et al., 2005)

Each scale was reviewed in order to identify which relational practices were considered necessary for family-centered service provision. A total of seven different relational practices were identified across the measurement scales; Table 1-1 lists these seven relational practices and the number of items within each scale that contributed to the relational practice. As shown in Table 1-1, there are four relational practices that were consistently included in the scales; these four practices were considered necessary for family-centered service provision:

a) Treating families with respect, as competent individuals and equals
b) Accepting families in an honest, caring, non-judgmental atmosphere
c) Actively listening to families’ needs, concerns, and priorities
d) Recognizing the families’ strengths and moving forward based on the strengths and desires of the family
Table 1-1: Specific relational practices identified across six family-centered measurement tools and the number of items related to each practice.

<table>
<thead>
<tr>
<th>Measure</th>
<th>The Measures of Processes of Care-56&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Helpgiving Practices Scale&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Family-Centered Professional Behavior Scale&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Enabling Practices Scale&lt;sup&gt;d&lt;/sup&gt;</th>
<th>Family-Centered Practices Scale (Extended Version)&lt;sup&gt;e&lt;/sup&gt;</th>
<th>Family-professional Partnership Scale&lt;sup&gt;f&lt;/sup&gt;</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treating parents with respect, as competent individuals and equals with strengths</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>15</td>
</tr>
<tr>
<td>Actively listening to families’ concerns and priorities</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Accepting parents in an honest, caring, non-judgmental atmosphere</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>Recognizing the families’ strengths and moving forward based on the strengths and desires of the family</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Being viewed as trust worthy by parents</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Giving parents information</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Being easy to work with</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

<sup>Note</sup>. <sup>a</sup>King, Rosenbaum, King, 1995; <sup>b</sup>Trivette & Dunst, 1994; <sup>c</sup>Petr & Allen, 1995; <sup>d</sup>Dempsey, 1995; <sup>e</sup>Dunst & Trivette, 2004; <sup>f</sup>Summers et al., 2005
Though these practices are consistently targeted in measures of family-centered service 
adherence, it can be difficult to operationalize these practices into concrete clinician skills (e.g.,
how to demonstrate respect to a parent). There is also limited understanding of how to most 
effectively and efficiently teach individuals such skills.

In response to these challenges, researchers have defined specific relational skills and 
aimed to improve these skills of pre-service SLPs. Some have targeted one skill at a time (e.g., 
targeting “mindfulness” in Beck, Verticchio, Seeman, Milliken, & Schaab, 2017; Beck & 
Verticchio, 2018), while others have attempted to teach multiple skills at once (e.g., Kadarevak, 
Laux, & Mills, 2004). For example, Kadarevak et al. (2004) implemented a counseling training 
module for 10 pre-service SLPs over the period of three class sessions (i.e., 8 hours of time). 
Each session was designated to teach a subset of relational skills (i.e., developing a therapeutic 
relationship through nonverbal behaviors, eye contact, and silence; asking open-ended questions; 
and paraphrasing and summarizing emotions and concerns). Pre-and post interviews were 
completed with students who played the role of parents. Following the three-session training 
module, the 10 pre-service SLPs were perceived as demonstrating improved counseling skills by 
blind raters using The Counselor Rating Form (CRF), an instrument that rated the students on 
three clinical dimensions labeled attractiveness, expertness, and trustworthiness (Barak & 
LaCrosse, 1975). Despite the reported positive gains of this study, the findings should be 
interpreted with caution as there was no measure of the pre-service SLPs’ actual implementation 
of the targeted relational skills.

Another group of researchers developed a multi-skill strategy in order to improve the 
active listening and effective communication skills of individuals in the helping professions 
(McNaughton, Hamlin, McCarthy, Head-Reeves, & Schreiner, 2008; Thistle & McNaughton, 
2015; Vostal, McNaughton, Benedek-Wood, & Hoffman, 2015). Participants in the three studies 
included pre-service SLPs (Thistle & McNaughton, 2015) and pre-service teachers (McNaughton
et al., 2008; Vostal et al., 2015). All participants across the studies learned a four-step strategy, summarized by the acronym LAFF: (a) Listen, empathize, and communicate respect; (b) Ask questions, and ask permission to take notes; (c) Focus on the issues; and (d) Find a first step.

Although the authors labeled their strategy as an “active listening” strategy, it also incorporated the other three highly cited relational skills of providing a caring atmosphere, treating families with respect, and moving forward based on the desires of the family. For example, participants were taught to make an initial statement of empathy and understanding, which contributes to the development of a caring atmosphere (Kroth & Edge, 1997; Sullivan, 2007). Participants were instructed to communicate respect through the appropriate use of nonverbal and verbal behaviors such as being attentive, using appropriate body language, and thanking the parents for meeting (Bodie, St. Cyr, Pence, Rold, & Honeycutt, 2012; Thistle & McNaughton, 2008). Participants were also taught to identify the next step together with the parent, in order to best address the concern.

In the Vostal et al. (2015) study, 31 pre-service special educators were taught the strategy during two regularly scheduled class periods (i.e., 150 minutes). The students’ use of the strategy was assessed during pre- and post role play interactions with an individual playing the role of a general education teacher. Following the training, all participants increased their implementation of the LAFF strategy and were perceived as demonstrating more effective communication skills by general education teachers outside of the study.

In the other two studies, pre-service students’ use of the strategy was assessed during role play interactions with individuals playing the role of parents (McNaughton et al., 2008; Thistle & McNaughton, 2015). McNaughton et al. (2008) used a pretest–posttest control group design with 10 pre-service teachers to examine the effects of in-person instruction on their use of relational skills. Following 120 minutes of direct instruction in the LAFF strategy, participants improved their implementation of the strategy steps during role play interactions. In order to determine
social validity, 30 parents outside of the study viewed pre-and post video tapes. When asked to identify the role play in which the student demonstrated stronger communication skills, 97% of the post-tests were chosen. When asked, in an open-ended question, to identify the most important skills in the preferred video tapes, the most noted skills were taking notes (82%), discussing next steps (76%), and appearing attentive and concerned (61%) (McNaughton et al., 2008).

Of particular interest to the present study are the findings from Thistle and McNaughton (2015), which used a pre-test post-test design to examine the effects of instruction. Before and after 90-minutes of in-person instruction in the LAFF strategy, 23 pre-service SLPs participated in simulated scenarios which were based on common concerns expressed by parents of young children who use AAC. Following instruction, all pre-service SLPs increased their implementation of the LAFF strategy. Seven parents of children who used AAC viewed pairs of role plays and responded to forced choice questions (i.e., In which video did you think the SLP demonstrated stronger communication skills?) and open-ended questions (i.e., In the video you just indicated as demonstrating stronger communication skills, what were the positive communication behaviors exhibited by the SLP?) regarding the simulated interactions. The parents chose the pre-service SLPs in the post-role plays as stronger communicators the majority of the time (i.e., 79%) suggesting that the pre-service SLPs benefited from the strategy instruction (Thistle & McNaughton, 2015).

Given the research evidence, the LAFF strategy appears to be a promising method to improve the relational skill set of pre-service SLPs. All participants across the studies increased their implementation of the strategy during role plays following a relatively short period of direct instruction. Parents and teachers outside of the studies additionally described post-instruction interactions more positively than the pre-instruction interactions, suggesting that the pre-service SLPs and teachers benefited from the instruction. These findings suggest that the specific
The instructional procedures used were effective in teaching pre-service teachers and SLPs how to implement the multi-step LAFF strategy. Each of the investigations employed the same instructional sequence of procedures, which was drawn from research on strategy instruction (Kent-Walsh & McNaughton, 2005; Schumaker & Deshler, 2006).

**Strategy instruction**

A learning strategy is defined as a sequence of procedures for accomplishing learning (Schmeck, 1988). Strategy instruction promotes learning by providing a framework to guide instruction when teaching a multi-step procedure. When using this framework, the goal is for instructors to identify the component skills of a strategy and then teach learners to master, sequence, and demonstrate the strategy in an efficient manner (Kameenui & Simmons, 1990). In the LAFF studies specifically, the instructional procedures were adapted from strategy instruction to include a pre-test, a description of the LAFF strategy steps, a model of the strategy, and the opportunity to practice the strategy.

Although strategy instruction was initially developed for teaching learning strategies to students with learning disabilities (Ellis, Deshler, Lenz, Schumaker, & Clark, 1991), the instructional model has been used effectively with adults without disabilities. In addition to the LAFF investigations (i.e., McNaughton et al., 2008; Thistle & McNaughton, 2015; Vostal et al., 2015), Binger and colleagues (2010) and Douglas and colleagues (2013) taught para-educators communication partner strategies for interacting with students who used AAC. Following the strategy instruction model proposed by Kent-Walsh and McNaughton (2005), all para-educators in both studies successfully learned the target strategies and implemented the strategies with children who used AAC following instruction. Thus, there is a growing body of research that supports the effectiveness of the strategy instruction model.
The evidence-based strategy instruction model typically follows a sequence of eight stages, which are described below (Ellis et al., 1991; Kent-Walsh & McNaughton, 2005):

1) pretest and make commitments
2) description of strategy
3) model of strategy
4) verbal practice of strategy steps
5) controlled practice and feedback
6) advanced practice and feedback
7) post-test and make commitments
8) generalization

**Pre-test and make commitments**

The purpose of this stage is to ensure learners want to make a commitment to learn the strategy (Ellis et al., 1991). It is designed to ensure that learners are motivated to learn the target strategy. In the model proposed by Kent-Walsh and McNaughton (2005), during this stage, baseline measures of the target strategy are taken. Then, they proposed that learners should not only be introduced to the target strategy, but also the component skills within the strategy. The stage is complete once learners reflect on their performance at baseline and the potential impact of acquiring the target strategy, as well as make a commitment to learning the strategy.

**Description**

The purpose of this stage is to provide a description of the component skills necessary to implement the target strategy (Kent-Walsh & McNaughton, 2005). This stage is also important in
emphasizing the strategy’s relevance to the target situation and the positive effects of strategy implementation.

**Model**

Following the description stage, each step of the strategy is demonstrated. This stage is critical for teaching and demonstrating the behaviors necessary to complete the target task (Ellis et al., 1991). The demonstration of each skill typically includes “self-talk” or the process of “thinking-aloud” by the instructor. The instructor models the process of problem-solving and progress monitoring while implementing the target strategy (e.g., “I saw that the student was not paying attention, so I re-directed her attention to the book”; Kent-Walsh & McNaughton, 2005).

**Verbal practice**

The purpose of this stage is for the learner to commit the sequence of skills to memory using rote rehearsal (Kent-Walsh & McNaughton, 2005). It is designed to ensure that learners have a solid understanding of each skill and the importance of each skill. Creating a point-form summary or an acronym is one way to achieve this goal (e.g., LAFF; Thistle & McNaughton, 2015).

**Controlled practice and feedback**

Once the strategy is described and demonstrated, it is necessary to build the learners’ confidence in applying the strategy and their fluency in doing so. During this stage, instructors provide learners the opportunity to practice the strategy, while providing specific feedback, as
well as prompts and cues to ensure effective implementation. In order to control the demands on learners, instructors can manipulate the contexts in which learners practice (e.g., practicing a strategy with the instructor in a quiet setting). The goal of this stage is to progressively allow learners to assume control of implementing the strategy and monitoring its effective use (Kent-Walsh & McNaughton, 2005). As learners become fluent in their use of the strategy, instructors fade prompts and feedback until learners feel confident in independently implementing the strategy.

**Advanced practice and feedback**

In this stage, learners shift from practicing in controlled environments to practicing in natural environments. The goal of this stage is to learn how to apply the target strategy to meet the demands typically found in the natural setting (Kent-Walsh & McNaughton, 2005). With the added demands of this stage, it is still appropriate for instructors to provide support to ensure effective implementation of the strategy steps. As learners progress through this stage, instructors again fade the support and feedback in order to promote independent use of the strategy and evaluation of its successfulness.

**Post-test and make commitments**

Following controlled and advanced practice, learners demonstrate their mastery of the strategy and plan for future use in all appropriate settings. Kent-Walsh and McNaughton (2005) proposed that learners be made aware of their successes in mastering the target strategy, as well as the positive impact that they had on the individual who uses AAC. Following this reflection,
instructors should assist the learners in making plans for both generalization and maintenance of strategy use.

Generalization

The goal of the final stage of strategy instruction is to facilitate the learners’ implementation of the strategy in all target situations. Successful generalization requires active, independent use of the strategy across settings that vary in complexity (Ellis et al., 1991). In order to fulfil this step, instructors assist learners in identifying when and where to use the strategy, how to adapt the strategy if necessary, how to use feedback to improve use of the strategy, and how to promote maintenance of the strategy in the learners’ permanent repertoires (Kent-Walsh & McNaughton, 2005).

The research suggests that strategy instruction is an effective technique to teach pre-service SLPs and teachers relational skills such as the LAFF strategy (e.g., McNaughton et al., 2008; Thistle & McNaughton, 2015; Vostal et al., 2015). Despite the positive findings of these studies, there is a limitation of the current scope of the research. To date, relational skills such as the LAFF strategy have only been taught through in-person trainings. However, in-person training has a number of constraints. When pre-service students are taught through instructor-led instruction, they are confined in various ways. For example, they must go at the pace of the instructor and must learn and review the same content as others at the same time (Clark, 2016). Additionally, students cannot pause, rewind, or maneuver throughout a lesson depending on their understanding of the material. Considering pre-service training programs, it may be particularly difficult to find extra time and instructors to provide instruction in relational skills since this content is often not part of the typical pre-service curriculum. In order to overcome some of these
limitations, another delivery method may be beneficial for students such as the use of e-learning, or learning in an online environment.

**Online learning**

“Overwhelming evidence has shown that learning in an online environment can be as effective as that in traditional classrooms” (Tallent-Runnels, 2006; p. 116). Accordingly, over the last decade, the use of e-learning has increased rapidly (Liaw, Huang, & Chen, 2007). E-learning is defined as instruction delivered on a digital device that is intended to support learning (Clark, 2016). Although much of e-learning is designed to inform students (i.e., communicate information), there is evidence supporting the use of online environments designed to build specific skills (i.e., perform tasks). In these e-learning environments, the goal is to build skills and to teach the learner how to adapt the skills for use in the real world, where each situation will vary.

Given the importance of demonstrating relational skills in various settings, an online environment may be highly effective for teaching pre-service SLPs a strategy such as LAFF. In order to boost the effectiveness of the online environment, several considerations should be made. According to Clark (2016), effective online learning must engage learners in ways that promote the selection, organization, integration, and transfer of new knowledge.

First, the attention of the learner must be drawn to the most important information. In achieving this goal, several types of media (e.g., printed text, graphics, audio, etc.) should be presented in order to increase attention to and engagement with the material and improve learning (Mayer, 2009). The use of graphics is especially important for novices, or those learners who have low knowledge of the target skills (Mayer and Gallini, 1990; Ollershaw, Aidman, & Kidd, 1997).
Then, the learner must learn how to organize and integrate the instructional words and visuals in order to build new knowledge. Target skills should be illustrated with worked examples, or step-by-step demonstrations of how to perform the target skills and strategy (Renkl, 2014). Demonstrations can be achieved through video modeling, an evidence-based technique that involves a demonstration of a target behavior through video representation of the behavior (Bellini & Akullian, 2007). By showing worked examples through video models, learners can build new knowledge through imitating others and reorganize the newly acquired knowledge in a way that works for them (Paas & Sweller, 2014). The examples should require that learners engage in a way that promotes active learning. One way to accomplish this is through varied context examples (e.g., different clinical scenarios). If contexts are varied, learners will learn how to apply the same set of skills across different environments (Quilici & Mayer, 1996).

Lastly, after learners have had the opportunity to build their understanding of the target strategy through examples, they should practice (Renkl, 2014). Practice exercises should attempt to mirror the natural context as much as possible. For example, being able to simply recognize information presented in an online lesson will not translate into effective transfer of the learned skills. Practice exercises should require learners to respond in ways that are expected of them in the work environment (Clark, 2014).

Despite the novelty and opportunities of e-learning, it is important to note that it is not the online environment which makes instruction effective, but rather the instructional methods that are delivered through the online medium. In this study, in order to ensure evidence-based instruction, principles of effective e-learning were paired with instructional procedures drawn from strategy instruction (Kent-Walsh & McNaughton, 2005) in order to teach relational skills to pre-service SLPs. The strategy instruction framework was chosen because it provides evidence-based procedures that will assist learners in acquiring the target strategy, implementing the
strategy across contexts, and maintaining their long-term use of the strategy (Ellis et al., 1991; Kent-Walsh & McNaughton, 2005).

Research aims and questions

The purpose of this study was to improve the relational skills of pre-service SLPs during interactions with parents of children who use AAC. Specifically, this study aimed to add to the existing research by developing and evaluating an online training to teach the LAFF strategy to pre-service SLPs. In order to investigate the effects of the online training, the following two research questions were proposed:

1) **What are the effects of an online training in the LAFF strategy on pre-service SLPs’ use of the component skills of the LAFF strategy skills in role plays with simulated parents?** It was hypothesized that the online training would result in an increase in implementation of the skills in the LAFF strategy during interactions with simulated parents. In the previous LAFF investigations (McNaughton et al., 2008; Thistle & McNaughton, 2015; Vostal et al., 2015), the pre-service students showed significant increases in their strategy use following in-person trainings. It was hypothesized that online training would have a similar or greater effect on the pre-service SLPs’ use of the LAFF strategy. As discussed, online environments may be advantageous in that they allow learners to be exposed to varied context examples (i.e., different SLP-parent scenarios; Clark, 2014). The use of various scenarios in the online training may accelerate the learning of LAFF strategy steps.

2) **What are the effects of an online training in the LAFF strategy on parents’ perceptions of the pre-service SLPs’ family-centered behaviors (as measured by The Measures of Processes of Care:56—Respectful and Supportive Care subscale**
It was hypothesized that parents would perceive the pre-service SLPs as more family-centered post-training. The LAFF strategy encompasses relational skills necessary to implement family-centered services. As discussed, it is well supported that the demonstration of relational skills is fundamental to the development of a respectful and supportive relationship and contribute significantly to family-centered services (Dunst & Trivette, 1996). Multiple family-centered frameworks across ages, settings, and cultures, emphasize the importance of relational behaviors in their definitions of family-centered care (Briar-Lawson, Lawson, Hennon, & Jones, 2001; MacKean, et al., 2005; CanChild Centre for Childhood Disability Research). Additionally, while no formal measures of family-centeredness have been used in previous investigations of LAFF, parents overwhelmingly selected pre-service teachers and SLPs who had learned LAFF as more effective communicators and identified the features of the strategy as important to their positive perceptions (McNaughton et al., 2008; Thistle & McNaughton, 2015).

In addition to changing the delivery method of LAFF instruction, this study measured the perceived family-centeredness of the pre-service SLPs, as well as implementation of the LAFF strategy skills. Previous studies of LAFF have only measured the demonstration of the strategy steps through a scoring rubric. Although there was evidence that pre-service SLPs demonstrated an increased use of the LAFF steps post-training, there were no formal measures of family-centered behaviors. To overcome this limitation of previous investigations, this study included a reliable and validated measure of family-centered behaviors which was completed by two parents of children with disabilities. Although parents were included in previous LAFF investigations, they did not provide input on all video interactions, nor did they rate the extent to which the pre-service SLPs demonstrated relational behaviors. In this study, the two parents
viewed all videotaped interactions, pre-and post training, and rated the extent to which the pre-service SLPs demonstrated relational behaviors.
Chapter 2

Method

Research design

The current study employed a 2 (groups) x 3 (measurement times) switching replications experimental design (see Figure 2-1). This design involved gathering pre-test data from two groups, administering training to one group, gathering a second assessment measure from both groups, administering the same training to the second group, and gathering a third assessment measure from both groups (Salkind, 2010). In this study, two groups participated in pre-test simulation role plays (Time 1). The first group received training, and then participated in a second role play. The second group completed a second role play without receiving the training (i.e., another “pre-test”). Following the second role play, the second group then received the training. Both groups then participated in a third role play. This design was chosen as it provided a control condition, replication of treatment effects, and a maintenance assessment in the group that received the training first (Cook, Campbell, & Peracchio, 1990). The switching replications design is considered one of the strongest and most effective experimental designs at controlling for threats to internal validity (Edmonds & Kennedy, 2016; Trochim, Donnelly, & Arora, 2015). It also eliminates the need to deny potentially beneficial treatment due to random assignment to the control group (i.e., Group 2; Edmonds & Kennedy, 2016).

<table>
<thead>
<tr>
<th>Group</th>
<th>Time point 1</th>
<th>Time point 2</th>
<th>Time point 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>Role play (pre)</td>
<td>Training</td>
<td>Role play (post)</td>
</tr>
<tr>
<td>Group 2</td>
<td>Role play (pre)</td>
<td>Role play (pre)</td>
<td>Training</td>
</tr>
</tbody>
</table>

Figure 2-1: Switching Replications Design.
Participants

Recruitment

Ethics approval was obtained from the Human Research Protection Program prior to recruitment (see Appendix B for IRB approval letter). Participants were recruited from a graduate course on Augmentative and Alternative Communication in a Department of Communication Sciences and Disorders in Central Pennsylvania. Recruitment was completed via a short presentation from the principal investigator following a regularly scheduled class. Per course requirements, all students were to participate in the online training developed for this study. Although completion of the training and participation in role plays were required as part of the course curriculum, all students had the choice to participate in the research study or not. The presentation included a brief description of the goals and procedures of the study. The students were informed that participation in the study would include video recordings of the role plays. The students were not required to participate in the study and were told that they would not be penalized if they chose not to participate. Following the presentation, students were given consent forms and information on how to contact the researchers if they had questions.

Inclusion criteria

The following inclusion criteria were used for participation: (a) first year Master’s students of speech-language pathology and (b) no prior exposure to the LAFF strategy. First-year graduate students were chosen for this study due to the reported lack of training in family-centered skills and the importance of acquiring such skills early in clinical training. Of the 17 students in the course that met the inclusion criteria, 16 of the students provided consent to participate in the study. The 16 students were randomly assigned to Group 1 or Group 2 by a
random number generator. Of these participants, 15 completed the study. Participant 13 was unable to complete the study due to medical reasons. Specific details pertaining to the participation of the pre-service SLPs in the online training are discussed in the Results chapter (i.e., the amount of time spent accessing the online training and the number of completed training components per participant).

**Participant information**

Prior to the study, the 16 participants provided demographic (i.e., age, gender, race, and ethnicity) and background information on their prior education (i.e., highest level of education completed), training, and experience working with families and/or AAC (see Table 2-1; see Appendix E for demographic form). Regarding prior training, participants were asked (a) Have you ever been trained in family-centered services or how to interact effectively with families? If yes, please explain; (b) Have you ever been trained in any interaction or counseling strategies? If yes, please explain; and (c) Do you have prior coursework in AAC. Regarding prior experiences, participants were asked, (d) Do you have any prior experience working with parents or family members professionally? If yes, please explain; (b) Do you have any personal experiences with families of children with disabilities? (e.g., do you have a child, sibling, parent, cousin with a disability?); and (c) Do you have prior experience with AAC (i.e., either professionally or personally)?
Table 2-1: Characteristics of participants at Time 1.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Gender</td>
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<tr>
<td>Female</td>
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<td>12.5</td>
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<tr>
<td>Race</td>
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<td>Caucasian</td>
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<td>.0</td>
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<td>Ethnicity</td>
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<tr>
<td>Non-Hispanic or Latino</td>
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<td>.0</td>
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<tr>
<td>Bachelor’s Degree</td>
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<td></td>
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<tr>
<td>CSD major</td>
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<tr>
<td>Non-CSD major</td>
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<td>25.0</td>
</tr>
<tr>
<td>Previous training in interaction/counseling strategies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>Previous AAC coursework (excluding current enrollment)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>Previous experience working with parent or family members <em>professionally</em>?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>50.0</td>
</tr>
<tr>
<td>No</td>
<td>4</td>
<td>50.0</td>
</tr>
<tr>
<td>Previous <em>personal</em> experience with family of children with disabilities?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>3</td>
<td>37.5</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>Previous experience with AAC? (professionally or personally)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>62.5</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
<td>37.5</td>
</tr>
</tbody>
</table>
The participants consisted of 3 males and 13 females and ranged from 22 to 30 years of age. Fourteen of the participants identified their race and ethnicity as white, non-Hispanic. One participant identified as white, Hispanic, and another participant identified as more than one race, non-Hispanic. All participants reported a Bachelor’s degree as their highest degree obtained. Ten of the participants reported solely having a Bachelor’s degree in Communication Sciences and Disorders (i.e., CSD; or similar degree name). One participant reported a dual major in CSD and Economics. Although all had completed prerequisite coursework in CSD, the remaining five participants reported bachelor degrees in other fields including English Linguistics, Exercise Science, Biology, Animal Science, and Linguistics and Cognitive Science.

Regarding prior training, of the 16 participants, none reported that they had ever been trained in family-centered services or how to effectively interact with families. Three of the participants reported training in counseling or interaction strategies during an undergraduate course and eight of the participants reported prior coursework in AAC (i.e. excluding current enrollment in their graduate AAC course). Regarding prior experience working with families, ten reported experiences including positions at daycare centers, schools, camps, and within the home as a “babysitter”, and one reported clinical experience as a student SLP. Six of the participants reported personal experiences with families of children with disabilities, including familial relationships with individuals with disabilities (i.e., cousins, aunt, sibling), as well as “family friends”. Six of the participants reported having prior experience with AAC. One reported gaining experience through courses, another through lab work, three through prior work or volunteer experiences, and one through a personal experience (i.e., cousin used high-tech AAC). Table 2-1 displays the demographic characteristics of the students by Group 1/Group 2. As shown, the groups were relatively similar on most key features. One feature on which the two groups varied was whether or not they had previous experience with AAC. No pre-service SLPs in the Group 2 reported experience, while five pre-service SLPs in Group 1 reported previous
experience. This was anticipated to not impact results since all pre-service SLPs were enrolled in an AAC course at the time of the study and had completed 12 weeks (75%) of the course.

Materials

This study involved two sets of materials: the online training and the simulated role plays, which were used to measure the demonstration of the LAFF skills by the pre-service SLPs.

Online training

Training content

An online training was developed for this study in order to teach pre-service SLPs how to actively listen and communicate effectively with parents of children with CCN. The pre-service SLPs were taught the LAFF strategy, a relational skills strategy that includes the following: (a) Listen, empathize, and communicate respect; (b) Ask questions, and ask permission to take notes; (c) Focus on the issues; and (d) Find a first step (McNaughton et al., 2008). This specific strategy (developed by McNaughton and colleague) was chosen due to its emphasis on key relational skills including: (a) treating families with respect, as competent individuals and equals; (b) accepting families in an honest, caring, non-judgmental atmosphere; (c) actively listening to families’ needs, concerns, and priorities; and (d) recognizing the families’ strengths and moving forward based on the strengths and desires of the family. In previous investigations, pre-service SLPs and teachers were successfully taught the LAFF strategy through in-person instruction using evidence-based strategy instruction procedures (McNaughton et al., 2008; Thistle &
McNaughton, 2015; Vostal et al., 2015). The pre-service SLPs and teachers were perceived more positively and as more effective communicators following instruction.

The LAFF strategy consisted of 4 steps, with a total of 12 component skills (see Figure 2-2).

### LAFF CHECKLIST

<table>
<thead>
<tr>
<th>Step</th>
<th>SLP behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td></td>
</tr>
<tr>
<td>LISTEN and show interest</td>
<td>Greet the parent, and offer some small chit chat</td>
</tr>
<tr>
<td>Empathize</td>
<td>Ask about the reason for meeting</td>
</tr>
<tr>
<td>Communicate respect</td>
<td>Make a statement of empathy and understanding</td>
</tr>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>ASK questions</td>
<td>Ask the parent for permission to take notes</td>
</tr>
<tr>
<td></td>
<td>Ask relevant open-ended questions</td>
</tr>
<tr>
<td>F</td>
<td></td>
</tr>
<tr>
<td>FOCUS on the issues</td>
<td>Summarize the parent’s concerns</td>
</tr>
<tr>
<td></td>
<td>Check for accuracy</td>
</tr>
<tr>
<td></td>
<td>Ask if the parent would like to add anything</td>
</tr>
<tr>
<td>F</td>
<td></td>
</tr>
<tr>
<td>Find a FIRST step</td>
<td>Consider the information provided and identify a plan</td>
</tr>
<tr>
<td></td>
<td>Plan a follow-up meeting</td>
</tr>
</tbody>
</table>

Figure 2-2: LAFF checklist.

The LAFF strategy was targeted in this training in order to prompt the pre-service SLPs to demonstrate relational skills during their interactions with parents of children with CCN.
Specifically, the pre-service SLPs were taught the following 12 component skills within the 4-step LAFF strategy:

- **L: Listen, empathize, and communicate respect**—The goal of this step is for the pre-service SLPs to communicate to the parent that he or she is trying to understand the parent’s thoughts and feelings (i.e., empathy) and that the pre-service SLP values how the parent is feeling (i.e., respect). This step includes five skills.

  1. Greet the parent, and offer some chit chat
     - The purpose of this skill is to welcome the parent into the room and engage in social conversation. Some example statements include, “Hi, it’s great to see you again,” or “Hi, thanks for coming in today.”

  2. Ask about the reason for meeting
     - The purpose of this skill is “give the parent the floor.” The pre-service SLP cannot provide assistance until he or she fully understands the concern as perceived by the parent (McNaughton et al., 2008). Having the chance to share a concern and be listened to can also help the parent better understand his or her feelings around the problem (Kroth & Edge, 1997). Examples include, “What would you like to talk about today?” or “What brought you in today?”

  3. Make a statement of empathy and understanding
     - Once the parent shares his or her concern, the pre-service SLPs were instructed to provide a statement of empathy. These types of statements have been shown to build rapport with parents (Dettmer, Thurston, Knackendoffel, & Dyck, 2008). They show that the pre-service SLP is understanding the parent’s thoughts and feelings and is trying to see the situation from the parent’s point of view. Empathetic listening is a key communication skill
necessary for the development of collaborative relationships (Turnbull, Turnbull, Erwin, Soodak, & Shogren, 2010). Example statements include, “I can understand why you are concerned,” or “I can understand that must be frustrating.”

4. Thank the parent for meeting
   - In order to communicate respect, the pre-service SLPs were taught to thank the parent for coming to meet. An example is the statement, “I appreciate that you came to talk with me.”

5. Show appropriate body language
   - The purpose of this skill is to communicate respect through non-verbal behaviors. The pre-service SLPs were told to openly face the parent (e.g., avoid crossing arms and legs), maintain a relaxed and slightly forward body position, and demonstrate attentive facial expressions (e.g., appropriate eye contact) (Bodie, St. Cyr, Pence, Rold, & Honeycutt, 2012). The training also discussed the importance of room set-up. The pre-service SLPs were instructed to avoid having a large desk between them and the parents, and to avoid sitting across from the parents. Sitting beside or diagonally from the parents may allow for heightened levels of conversation.

- **A - Ask questions**—The goal of this step is to ask good questions that will effectively gather information on how the parent perceives the problem, while also communicating respect for the parent’s point of view.

6. Ask the parent for permission to take notes
   - The purpose of this skill is to convey respect for the seriousness of the parent’s concern, to show interest in the parent’s perspective (Fontes, 2009), and to ensure that written information is gathered to accurately identify and
complete the next step (Price, 1991). An example of this skill is asking, “Do you mind if I take some notes while we talk?”

7. Ask relevant, open-ended questions
   - The purpose of this skill is to gain information from the parent (Vostal et al., 2015). Open-ended questions allow the parent to respond in a number of different ways (i.e., “Tell me about Caroline’s communication at home.”), while closed-ended questions typically required a specific response (e.g., “Does Caroline use her device with her brother?”). Open-ended questions communicate that the pre-service SLP is interested, and they also encourage the parent to share information, while revealing their feelings and perspective around the issue (McNaughton et al., 2008).

8. Summarize the parent’s concern
   - The purpose of this skill is to communicate that the pre-service SLP is listening carefully and wants to fully understand the concern (Cramer, 1998). Examples of statement that shift to a summery include, “I’d like to review what we have talked about,” or “I want to make sure I have everything…” Often, a summary may encourage the parent to continue speaking and may lead to additional information (McNaughton et al., 2008).

9. Check for accuracy
   - The purpose of this skill is to ensure that both parties have a clear understanding of the concern before proceeding to the next step (Dettmer et al., 2008). This skill provides evidence that the pre-service SLP was actively
listening and is working to understanding the issues from the parent’s perspective. By checking for accuracy, the pre-service SLP may additionally provide the parent an opportunity to clarify or provide more information. Example statements include, “Do I have everything right?” or “Is that correct?”

10. Ask if the parent would like to add anything

- The last skill of this step provides an opportunity for a parent to add information that the pre-service SLP never asked about. Example statements include, “Is there anything else you would like to add?” or “Do you have anything else to share?”

- **F - Find a first step**—The goal of this step is to consider the information gathered and think about next steps together with the parent.

11. Consider the information provided and identify a plan

- The purpose of this skill is to identify a plan together with the parent, based on the information gathered during the meeting. The pre-service SLPs were taught that being able to effectively resolve issues often requires gathering more information on the nature of the challenge and the views of others involved (e.g., teachers) (Dettmer et al., 2008; Thistle & McNaughton, 2015). Thus, the plan for follow-up could include observing the child in his or her natural setting, or discussing the parent’s concern with others who frequently interact with the child.

12. Plan a follow-up meeting

- The last skill is to plan a follow-up meeting with the parent and identify a target date for the meeting (Thistle & McNaughton, 2015). For example, “Let’s plan to meet again on Friday.”
As shown in Figure 2-2, the pre-service SLPs were provided with a checklist for LAFF due to the evidence of the effectiveness of performance checklists in promoting learning (Casey & McWilliam, 2011; Hunskaar & Seim, 1984; McCurdy & Weisman, 1995; Rowlands, 2007). Performance checklists, such as the LAFF checklist developed for the online training, include the behaviors, skills, or actions that define desired performance (Westgaard, 2001). The checklist thus serves as a memory aid for learners, especially novices who are approaching an unfamiliar task (Rowlands, 2007). Research demonstrates the positive effects of checklists, including error reduction and improved adherence to practice guidelines (Hales & Pronovost, 2006). By labeling the operational skills of the LAFF strategy, it was hypothesized that the checklist would scaffold the learners’ metacognitive awareness of the strategy skills and the actions they complete (cf. Rowlands, 2007). (See Appendix G for a more detailed checklist, which was provided as an option to the participants, as well as the simple revision).

**Instructional procedures**

The instructional procedures for the online training were drawn from research on the stages that have been identified as effective when providing strategy instruction (Kent-Walsh & McNaughton, 2005). The instructional sequence outlined by Kent-Walsh and McNaughton (2005) was adapted for use in an online environment, and included the following stages: pretest and commitment to learning the strategy, description of strategy, demonstration of strategy, verbal practice of strategy step, controlled practice and feedback, advanced practice and feedback, post-test and commitment to implementing the strategy, generalization (See Table 2-2). Although strategy instruction has primarily been implemented and evaluated in traditional classroom learning environments (i.e., in-person instruction), there is evidence of its effectiveness
in an online environment (Douglas, McNaughton, & Light, 2013; Douglas, Kammes, & Nordquist, 2017).

**Training format**

The online training consisted of four sections (i.e., introduction, LAFF strategy, practice activities, and conclusion. Table 2-2 presents each of these sections, the strategy instruction stages included in each section, and the specific components on the online training used in each stage.

<table>
<thead>
<tr>
<th>Strategy Instruction Stages</th>
<th>Components of the Online Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td></td>
</tr>
<tr>
<td>① Pre-test and make commitment</td>
<td>Video demonstrations of successful and unsuccessful parent-professional interactions</td>
</tr>
<tr>
<td>LAFF Strategy</td>
<td></td>
</tr>
<tr>
<td>② Description of strategy</td>
<td>Text/audio description of the strategy skills</td>
</tr>
<tr>
<td>③ Demonstration of strategy</td>
<td>Video model of the strategy skills</td>
</tr>
<tr>
<td>④ Verbal practice of strategy steps</td>
<td>Point-form open ended question to recall the strategy steps</td>
</tr>
<tr>
<td>Practice Activities</td>
<td></td>
</tr>
<tr>
<td>⑤ Controlled practice and feedback</td>
<td>Recognition exercise: Video scenario with questions to assess recognition of the strategy skills</td>
</tr>
<tr>
<td>⑥ Advanced practice and feedback</td>
<td>Application exercise: Video scenario with pauses and prompts to demonstrate strategy skills</td>
</tr>
<tr>
<td>Conclusion</td>
<td></td>
</tr>
<tr>
<td>⑦ Post-test and commitments</td>
<td>Final application exercise: Video scenario with pauses and prompts to demonstrate strategy steps</td>
</tr>
<tr>
<td>⑧ Generalization</td>
<td>Completed without the use of the LAFF checklist</td>
</tr>
</tbody>
</table>
Section 1: Introduction. The online training began with an introduction section in which the learners completed Stage 1 of instruction (i.e., pre-test and commitment). This section was designed to ensure that learners were motivated and committed to learning the LAFF strategy and to activate the learners’ prior knowledge related to the use of relational skills during SLP-parent interactions.

Specifically, the introduction began with a welcome page which introduced learners to the idea that working with families would be an essential part of their job, regardless of their future work setting. They were then introduced to the concept of family-centered services and the characteristics of family-centered SLPs. In order to illustrate the current state of family-centered services, the learners were presented with quotations from real parents of children with complex communication needs. Positive and negative experiences were shown, as well as parent reports of “what they want” from service providers. After the learners were exposed to the varying parent experiences, they were asked, “Why do you think family-centered services are important?” The pre-service SLPs chose reasons from a list of potential statements (e.g., “Families will be more involved”, “Families will feel more empowered”). On the next page of the training, they were shown that all of the statements were evidence-based benefits of family-centered services. Following the benefits, they were then shown the negative outcomes if services are not family-centered.

The pre-service SLPs were then told that they would have the opportunity through the training to learn a 4-step strategy to interact and listen effectively with families of children with CCN. Before the strategy was introduced, the learners viewed two videos of SLPs interacting with a parent of a child with CCN. One of the SLPs was trained in the LAFF strategy (i.e., Elena) and one was not (i.e., Sarah). This activity was included in order to activate the learners’ prior knowledge and experience related to interacting with parents.
Following the two videos, the learners were asked, “In your opinion, which SLP has a higher likelihood of forming a collaborative relationship with the parent?” They were then told to “identify 2 reasons why you chose Elena or Sarah as more likely to form a collaborative relationship” (i.e., provide a self-explanation of what the SLP did in the video that they chose). Comparing exemplars and non-exemplars of the strategy use as well as providing self-explanations are both evidence-based engagement techniques that were purposely incorporated into this activity (Clark, 2014). Both were included in order to increase engagement with the videos, as well as limit surface-level processing.

Once the pre-service SLPs completed these questions, they were told that Elena was trained in the use of the LAFF strategy. The specific family-centered skills that Elena demonstrated were discussed (e.g., “Elena listened to the parent, valued her input, etc.”). This pre-programmed feedback (i.e., expert response) allowed the learners to make a comparison with their self-explanation. The learners then transitioned into the next section of the training, in which they had the opportunity to “break apart the interaction between Elena and Elizabeth and identify the specific skills that contribute to LAFF.”

Section 2: LAFF Strategy. The second section of the training included stages 2-4 of the strategy instruction model recommended by Kent-Walsh and McNaughton (2005). The LAFF strategy was introduced as a whole, and then broken up into its four steps (i.e., L, A, F, F). Evidence suggests that if learners are unfamiliar with material, they may become cognitively overloaded if presented with a continuous stream of content (Mayer & Chandler, 2001; Moreno, 2007). For this reason, instruction in the strategy was segmented into four sections (i.e., one for each strategy step) in order to give learners time to consolidate the information, rather than providing a continuous description and model of the entire strategy. For each individual step, a description and model was provided before moving onto the next step (i.e., the “L” was described and modeled, before moving onto the “A” step).
Describe. A video description of each step was provided including a description of the component skills within each step (e.g., checking for accuracy is a skill within the “F” step). The video depicted the individual skills of each step in a checklist format. As discussed earlier, the LAFF checklist was included in order to serve as a memory aid for the pre-service SLPs and to scaffold their metacognitive awareness of the strategy steps (Rowlands, 2007). As each step was described, the video showed animation of the target skills in the checklist being “checked off”. Evidence suggests that the inclusion of visual cueing during animations can improve the effectiveness of animations, as well as facilitate the cognitive representation of the material’s organization and improve retention (De Koning, Tabbers, Rikers, & Paas, 2009). The relevance of each step to working with families in the AAC field was also emphasized as well as the positive effects of using the step.

Model. Following the description of each step, a demonstration of the skills within the step was provided through a video model of an SLP using the strategy. The model was the same video that the learners viewed during the introduction (i.e., Elena). Evidence shows that brief animations or videos with audio are the best way to demonstrate strategy steps in multimedia environments (Clark, 2014). During the video demonstration, the video paused and a description was provided of what the SLP did during the video to realize the strategy step (i.e. “thinking aloud”). This think aloud allowed the students to see the thought and decision making processes involved in the strategy. During the pause of the video, a LAFF checklist also appeared on the screen, which listed each skill of the specific LAFF step. Similar to the strategy description video, an animated “check” on the checklist coincided with the audio description of the specific component skills. Following the description and demonstration of each step and its component skills, the learners were shown a checklist of the entire LAFF strategy, with a highlighted box around the step that was just learned (see Figure 2-3 for an example).
Verbal practice. Following the description and demonstration of each LAFF step, the learners were prompted to recall the steps of the strategy (i.e., “What does “F” stand for?”). The learners were provided with a text box to insert their responses, and were provided with immediate feedback following completion on the accuracy of their responses.

Figure 2-3: Screenshot of online training illustrating the describe and model stage.
Section 3: Practice Activities. The third section of the training included stages 5-6 of the strategy instruction model: controlled and advanced practice.

Controlled practice and feedback. This stage was included in order to build learners’ implementation and confidence with the strategy steps and for learners to gradually assume control of monitoring their use of the strategy (Kent-Walsh, 2003). The inclusion of practice exercises in addition to demonstrations/examples have been shown to not only improve the learning of strategy steps, but also accelerate the process of learning (Clark, 2014). In face-to-face settings, controlled practice typically includes practice sessions in which instructors gradually fade prompts, cues, and feedback in order for the learners to become more proficient. In order to adapt this stage for an online environment, an activity was included which consisted of scaffolded supports where prompts, questioning, and feedback were provided in order to ensure success in demonstrating the strategy steps (van Merrienboer, Kirschner, & Kester, 2003). Considering that controlled practice is usually in carefully controlled environments, the pre-service SLPs practiced initially with a recognition activity. The activity was designed so the pre-service SLPs would experience success in recognizing the strategy steps during a real interaction.

The recognition activity included viewing a new interaction between an SLP trained in the LAFF strategy and a parent of a child who used AAC (see Figure 2-4). The pre-service SLPs viewed the interaction in four segments, each coinciding with one of the four steps of LAFF. After each of the four segments, the pre-service SLPs had to identify whether or not the component skills of each LAFF step were present (i.e., by selecting “present” or “not present” from a drop-down list). Following each selection, the pre-service SLPs checked for accuracy of their responses. For each of the four LAFF steps, the pre-service SLPs were given a percent of accuracy on their selections (i.e., “2 out of 3 (66%) of your selections are correct”). If the pre-service SLPs did not reach 100% accuracy, they completed the specific strategy step again.
In order to move forward in the training, pre-service SLPs had to correctly identify the presence or absence of all the LAFF steps within the activity (i.e., 100% accuracy). The specific SLP shown in this activity demonstrated 10 of the 12 component skills of LAFF.

Once the pre-service SLPs correctly identified the component skills present in the interaction, they were shown a completed LAFF checklist for the SLP in the video. The checklist included the steps completed by the SLP, as well as a detailed explanation of how the SLP demonstrated each component skill (Moreno, 2004; Clark, 2014).

Figure 2-4: Screenshot of the Controlled Practice activity.

**Advanced practice and feedback.** The advanced practice stage was included to allow the pre-service SLPs to demonstrate their use of the strategy. In order to include advanced practice in an online environment, the pre-service SLPs were exposed to a video scenario that was based on real-life concerns expressed by parents of children with CCN. Research suggests that embedding practice exercises within relevant job contexts (i.e., including realistic scenarios) will optimize learning (Clark, 2014). To demonstrate their knowledge, the pre-service SLPs were asked to “play the role” of an SLP and indicate what they would say or do during the interaction. As the
pre-service SLPs watched the video, the video paused and prompted the learner, “What would you say next?” or “What would you do next?” They were told to refer to the LAFF checklist for assistance in this task, as required. For example, if the parent in the video stated, “I’m worried that Charlie isn’t talking yet,” a prompt appeared on the screen that said, “What would you say next?” (see Figure 2-5). Beneath the prompt, the pre-service SLPs were provided with a text-box to insert their responses. Once an answer was submitted, an “expert response” (i.e., use of the relevant component skills in the LAFF strategy) was demonstrated by the SLP in the video, which allowed the pre-service SLPs to make a comparison to their response. Following each “expert response”, the LAFF checklist appeared on the screen, with a checkmark for the demonstrated skills (see Figure 2-6).

Figure 2-5: Screenshot of the Advanced Practice activity.
Section 4: Conclusion. The final section of the training included the “post-test and commitment” and “generalization” stages (Ellis et al., 1991; Kent-Walsh & McNaughton, 2005). During this section, the pre-service SLPs demonstrated mastery of the LAFF strategy with one final application exercise comparable to the advanced practice stage. This activity was similar to the interactive video in the advanced practice stage, but included less scaffolding. The pre-service SLPs were told to indicate what they would say and do without using the LAFF checklist or referring back to the training. This activity was developed to more closely mirror a "real" interaction with a parent of a child who uses AAC.

Once the final application activity was completed, the pre-service SLPs reached the end of the training. They were told that, “Although you practiced the LAFF strategy through this training, the only way to become comfortable and confident in your use of the strategy is through more practice.” They were then provided with instructions on how to practice the strategy in the
following days as well as how to maintain the use of the strategy long-term. The section then ended by re-visiting “what parents want”, the benefits of family-centered services, and a final reminder that it is the role and responsibility as an SLP to provide family-centered services.

**Training environment**

The online training was housed on Moodle, an e-learning platform which allows educators to create personalized courses in a secure learning environment (“About Moodle”, 2017). An online environment was considered advantageous for the demonstration of a strategy such as LAFF, as learners could be provided with multiple video models of target behaviors (Whalen, Massaro, & Franke, 2009).

**Simulated role plays**

Six role plays were developed to simulate a parent’s meeting with the child’s SLP. These role plays were used to assess the pre-service SLPs use of the target relational skills at three points in time with some before training and some after. Role plays were used in order to allow the pre-service SLPs to demonstrate their pre- and post-instruction skills in a supportive and low-risk environment. Interactions with simulated parents may be helpful for pre-service professionals considering that it is often hard to predict when challenging parent interactions will occur. It is thus difficult to observe a challenging parent interaction during actual services and use the interaction for instructional purposes (Hill, Davidson, & Theodoros, 2010). In a field such as speech language pathology, in which the development of students’ relational skills is vital, faculty can use simulated interactions to facilitate teaching and assessment of skills such as actively listening or communicating effectively.
Following the recommendations of Dotgers and colleagues (2008) and Barrows (1987), the scenarios were based on actual concerns expressed by families of children with CCN. In addition to this recommendation, the cases were shaped by guidelines described by Barrows (1987): prevalence of the case within the profession, clinical importance/impact, social impact, and instructional importance.

In order to adhere to the recommendations from Barrows (1987), the scenarios were developed based on parent and SLP perspectives reported in the literature and reported by SLPs with experience working with children with CCN (e.g., Anderson, Balandin, & Stancliffe, 2014; 2015; 2016; Bailey, Parette, Stoner, et al., 2006; Crisp, Draucker, & Ellett, 2014; Goldbart & Marshall, 2004; McCord & Soto, 2004; McNaughton et al., 2008; Mandak & Light, 2017).

Topics included:

a) Parents seeking more services for their child
b) Parents wanting a new AAC device for their child
c) Parents seeing no need for AAC, because of worries about the impact on spoken language
d) Parents worrying about social isolation of their child because of AAC
e) Parents feeling overwhelmed by the diagnosis and communication challenges
f) Parents feeling overwhelmed with the programming demands of the AAC device

Each of the scenarios included a script and a description of the problem to be discussed with the SLP. Each script specifically listed four statements to be used during the interaction.

Once the scenarios were initially developed, they were reviewed by a parent of a child with CCN. The parent was the mother of a child who used a speech-generating device and was currently receiving AAC services from an SLP. In order to ensure the validity of the scenarios in representing real-life interactions, the parent was asked to answer the following three questions:

a) Is this a realistic situation?
b) Is this the wording an SLP or parent would use during an interaction? and

c) If you answered ‘no’ to either of the first two questions, how can this scenario be made more realistic?

d) How important is it that SLPs are prepared to handle this topic/problem with a parent?

Of the six scenarios, the parent indicated that four of the scenarios were both realistic concerns and “very important” for SLPs to be able to handle. The following four scenarios were thus included in the simulated interactions:

a) Parents wanting a new AAC device

b) Parents seeing no need for AAC, because of worries about the impact on spoken language

c) Parents worrying about social isolation of their child because of AAC

d) Parents feeling overwhelmed with the programming demands of the AAC device

Each simulation was balanced across the three time points of the study, allowing each participant to be exposed to three of the scenarios once.

*Training of simulated parents.* Four doctoral students studying speech-language pathology were recruited in order to play the role of parents of children with CCN (i.e., simulated parents). The doctoral students included three white women and one African-American man. They were chosen based on their availability during the study timeframe, and their prior work and educational experiences with children with disabilities and parent interactions.

The use of simulated parents follows a similar model to the use of simulated patients which originated in the medical field in order to train future physicians in diagnosing and communicating with patients. The simulated patient pedagogy was designed to provide medical students a carefully crafted simulated patient who presents specific symptoms and requires the students to demonstrate certain professional behaviors (Barrows, 1987; 2000).
Similar to simulated patients, simulated parents are trained in a standardized and scripted way to present specific behaviors, statements, concerns, etc. Although the use of simulated patients was established in the field of medicine (Barrows, 1987, 1993, 2000), researchers in the field of teacher education drew from this established pedagogy and crafted the pedagogy of simulated parents, specifically to prepare teacher candidates for parent-teacher conferences (Dotger, Dotger, & Maher, 2010; Dotger, Harris, & Hansel, 2008). Simulated parents have been used successfully in the postgraduate setting for the training of counseling skills (Farrell, Deuster, Donovan, & Christopher, 2008), communicating effectively (Thistle & McNaughton, 2015), and breaking bad news to parents (Vaidya, Greenberg, Patel, Strauss, & Pollack, 1999). Investigations have also reported that interactions with simulated parents are viewed as authentic and positive experiences for students (Dotger et al., 2008).

In order to ensure the standardization of the simulated parents, all were required to attend a training on portraying a parent. Each simulated parent was trained to portray one parent. Each was given a specific profile with a description of the parent he or she would portray including informational content such as employment, marital status, or living arrangements (Dotger & colleagues, 2008; See Appendix H for the four parent profiles). The simulated parents were first instructed to enter the room in which the pre-service SLP was waiting, and to sit in the chair closest to the door. The simulated parents were then instructed to use statement #1 near the beginning of the conversation, statements #2 and #3 during the conversation, and statement #4 if the SLP asked for additional thoughts or questions. The simulated parents were required to use statements #1-3, and had the option to use statement #4. If the pre-service SLP offered a solution or a plan for the next steps, the simulated parent was trained to end the interaction by agreeing with the proposed solution (e.g., “That sounds good. We can give that a try.”)

During the training, the simulated parents had the opportunity to practice their scenarios and ask any questions. During a final practice scenario, the simulated parents needed to
demonstrate 100% of the target parent statements in order to complete the training. All simulated parents were blind to the conditions of the study and to the group assignment of the pre-service SLPs. The simulated parents were also not aware of the set-up/design of the study.

**Procedural integrity**

The procedural integrity of the role plays was independently assessed by a graduate student in Special Education following the last role play. The graduate student was blind to both the conditions and goals of the study. Six videos of each simulated parent were randomly chosen, resulting in 24 total videos (53%). For each video, the graduate student identified whether each of the 3 required statements was stated by the simulated parent during the interaction. In all 24 videos, the simulated parents used their required statements with 100% accuracy.

**Social validity of the role plays**

The authenticity of the simulated parents was measured following the participants’ completion of their last role play. In response to, “The simulated parents were effective in portraying real parents,” 7 (44%) of the pre-service SLPs strongly agreed with this statement, 8 (50%) agreed, and 1 (6%) disagreed.
Simulated role plays

The pre-service SLPs participated in three role plays, one at each time point (i.e., Time 1, Time, and Time 3). All role plays were video-taped. The role play interactions with the simulated parents were balanced so the pre-service SLPs interacted with a different simulated parent at each of the three time points and each scenario/simulated parent was used a similar number of times across Time 1, Time 2, and Time 3 (see Appendix I for role play scenarios). At each time point, the pre-service SLPs completed the same procedures:

1. The pre-service SLPs were told that they would be meeting with an individual playing the role of a parent of a child with CCN. The parent would have a specific concern and the pre-service SLPs were told to play the role of the child’s SLP.
2. The pre-service SLPs received a short summary of a scenario which described a child on his or her caseload. Each pre-service SLP had 10 minutes to review the scenario. There were no restrictions regarding how they could prepare for the interaction or what they could take into the room.
3. After 10 minutes of review, the pre-service SLPs were taken to a room by a researcher. Each room included a rectangular table or desk with three chairs. Two of the chairs were across from each other on the long sides of the table, and the other chair was on a short end of the table.
4. The pre-service SLPs were told that the parent would sit in the chair on the long side of the table closest to the door and that they could sit in either of the two remaining chairs. They were told that the parent would knock on the door and come into the room. Once these instructions were given, the researcher started video recording and exited the room.
5. The simulated parent entered the room and sat in the chair closest to the door. He or she then responded to the pre-service SLPs according to his or her scenario script.

**Access to online training**

Following the first role play for Group 1 (i.e., Time 1) and the second role play for Group 2 (i.e., Time 2), each pre-service SLP was given instructions to access the online training site. The instructions required the pre-service SLPs to register on the Moodle website, and then enroll in the specific training. Once they accessed the training, they were told the following:

“In this training, you will learn a strategy to effectively interact and develop positive relationships with parents. Once you learn the strategy, you will have the opportunity to practice recognizing and using the strategy during SLP-parent interactions in an online environment. The training can be completed independently and does not need to be completed in one sitting. Learners must successfully complete all activities in order to complete the training. The training will take approximately 75-90 minutes.”

**Data collection**

A camera was used to video record each of the simulated role plays. Each camera was set up on a tripod in the corner of each room. Video recording began once each pre-service SLP entered the room to wait for the simulated parent. At the completion of each interaction, the simulated parent stopped the video recording. After completion of the role plays at each time point, the recordings were labeled with a numeric code and uploaded to a secure, password-protected digital storage system (i.e., “BOX”).
Measures

Dependent variables

To assess the impact of the online training, the following two measures were used:

1. LAFF Scoring Rubric
2. MPOC-56—Respectful and Supportive Care subscale

LAFF scoring rubric

In order to measure the participants’ use of the component skills in each strategy step, a scoring rubric was used which was adapted from past research investigating the LAFF strategy (McNaughton et al., 2008; Thistle & McNaughton, 2014). In previous investigations using the rubric, two independent observers scored the LAFF rubric with 89-95% reliability (McNaughton et al., 2008; Thistle & McNaughton, 2014). Each of the four LAFF steps and the 12 component skills were included in the rubric for the current study (see Appendix J). The score was determined by calculating the presence or absence of each skill. The dependent variable was the total score for all skills with a maximum score of 12 (i.e., 5 skills for the “L” step, 2 skills for the “A” step, 3 skills for the first “F” step, and 2 skills for the last “F” step). A coding manual was developed, which included the operational definitions for each of the 12 skills in the LAFF strategy (see Appendix K). For each component skill, a definition was provided, as well as example statements, and exclusionary information, if appropriate (e.g., Do not count open-ended questions that are not aimed at getting more information; “Tell me when would be best to meet.”)

Coding procedures. A graduate student in Special Education was recruited to complete the LAFF coding. The coder was trained by watching a 30-minute training video (developed by the principal investigator) and then coding 6 practice videos of students interacting with
simulated parents. The was blind to the conditions of all videos. For each video, the coder was told to watch the entire video to obtain an initial impression of the interaction, and then score the presence of behaviors during a second viewing. The LAFF scoring data were collected via REDCap (Research Electronic Data Capture), a secure, web-based application designed to support data capture for research studies (Harris et al., 2009). The rubric (see Appendix J) was placed online in order to allow the observers to place the video and rubric side-by-side (see Figure 2-7). Each of the four LAFF steps and the 12 component skills were included in the rubric and were scored a 1 (or 0) depending on the presence (or absence) of the behaviors during the simulated interactions. The coder reached 100% agreement with the standard for the practice videos during training.

Figure 2-7: Screenshot of the LAFF rubric and simulated role play video side-by-side as seen by the coders.

Once training was complete, the coder was granted access to a “BOX” online which contained the role play videos in a balanced order. The videos were balanced by separating the 45
videos into 3 groups of 15 videos. Each group of 15 videos included a similar number of role plays from each group of participants and from pre- or post-training.

**Reliability.** In order to ensure reliable scoring, a second coder was also trained in the coding procedures as described earlier. This coder was also a graduate student in Special Education, blind to the conditions of the videos. The second coder scored 33% (n=15) of the videos. The reliability videos were selected so the coder saw one video of each participant (n=15) at varying time points. First, four videos were randomly chosen from Group 1 at Time 1 (i.e., pre-instruction). Then the remaining four participants’ videos from Group 1 were chosen from Time 2 (i.e., post-instruction). The same procedures were completed for Group 2. Four participant videos were randomly chosen from Time 1 (i.e., pre-instruction). Then, the remaining three participants’ videos were chosen from Time 3 (i.e., post-instruction) for a total of 15 videos.

The rubrics from each coder were compared for the 15 videos. Agreement was calculated by comparing each coder’s rating for each individual skill for a total agreement score out of 12. For example, if the two coders both agreed that a pre-service SLP used 7 out of the 12 LAFF skills and did not use 5 of the skills, and they agreed on the presence or absence of the same skills, their agreement was 12 out of 12 (i.e., 100%). The rubrics from each coder were compared, resulting in an agreement of 92% across sessions.

*The Measures of Processes of Care (MPOC-56)—Respectful and Supportive Care subscale*

In addition to the LAFF scoring rubric, the role plays were also scored by parents using the MPOC-56 Respectful and Supportive Care subscale. In order to measure the family-centeredness of the pre-service SLPs’ interactions in this study, parents of children with disabilities also coded the role play interactions, by completing a subscale of the MPOC-56.

The MPOC-56 (King, Rosenbaum & King, 1995) is a parent-report questionnaire that
asks parents/caregivers to rate their perceptions of the extent to which specific family-centered behaviors of professionals occur. The tool was originally created to examine the way in which services were delivered and the impact that services had on children with disabilities and their families.

The MPOC-56 was selected for use in this study following a review of observational measures to determine their appropriateness for measuring family-centered skills, including The Family-Provider Interaction Analysis (Goetz, Gavin, & Lane, 2000), The Effective Listening and Interactive Communication Scale (King et al., 2017), and the Active Listening Observation Scale (Fassaert, Dulmen, Schellevis, & Bensing, 2007). Each of these other tools was determined to have significant limitations. The Family-Provider Interaction Analysis (Goetz, Gavin, & Lane, 2000) is an observational tool that focuses only on verbal behaviors, and thus neglected the importance of non-verbal relational skills. The Effective Listening and Interactive Communication Scale-Assessment Rubric (ELICS-AR; King et al., 2017) is a tool specifically designed for simulation observers to rate clinicians’ listening skills; however, it has only been used in one study and does not have established reliability and validity. The Active Listening Observation Scale (ALOS; Fassaert et al., 2007) was designed to measure the perceived frequency of active listening behaviors by physicians when consulting patients with minor ailments, and accordingly did not include a breadth of relational skills among its items.

In contrast, the MPOC-56 was considered the most appropriate tool due to its rigorous design, focus on services for children with disabilities, and inclusion of a subscale specifically designed to measure relational skills (i.e., Respectful and supportive care domain). The MPOC-56 has been shown to have strong psychometric properties (King et al., 1996; King et al., 2004), specifically strong internal consistency (Cronbach’s alpha = .86), test-retest reliability (intra-class correlation coefficient [ICC] = .84), and good concurrent validity with a significant positive correlation with a measure of parent satisfaction, and a negative correlation with a stress measure.
It was therefore selected for use in this study and adapted for observational use.

It must be noted that the MPOC-56 is typically completed by parents regarding the family-centered services that their child receives. The measure was developed and intended for use as a measure of professional-family relationships, which typically develop over time. Accordingly, the strong psychometric properties are only relevant if the measure is used in a way that the developers intended. In the present study, the MPOC-56 was adapted and used as an observational tool for parents to assess the family-centered behaviors during a single interaction in which they did not participate. It is thus possible the reliability and validity of the scale is not applicable, since the measure is being used in a different way.

As the first study to use the MPOC-56 as an observational measure, the parent raters in this study completed the 7-point Likert scale for each item on the MPOC-56 subscale reporting the degree to which they felt the pre-service SLPs displayed specific aspects of family-centered service provision (1=not at all, 2=to a very small extent, 3=to a small extent, 4=to a moderate extent, 5=to a fairly great extent, 6=to a great extent, 7=to a very great extent). Although the MPOC-56 consists of 56 items in five domains, only one of the domains was included in this study – Respectful and Supportive Care, which includes 8 items (King et al., 1995). Although relevant to family-centered behaviors, the other four domains consist of items that are likely not observable in an early interaction with a parent, but rather experienced over a longer period of time (i.e., To what extent does your child’s SLP make sure that at least one team member is someone who works with you and your family over a long period of time?).

The wording of the MPOC-56 items was adapted in order to ask questions related to the pre-service SLPs in the videos. For example, MPOC-56 items are typically stated as, “In the past year, to what extent do the people who work with your child treat you as an individual rather than as a “typical” parent of a child with a disability?” Items in the MPOC-56 were re-worded for use as an observation tool as follows: “In the video, to what extent does the SLP…"
• Treat the parent as an individual rather than as a “typical” parent of a child with a disability?

• Provide a caring atmosphere rather than just give the parent information?

• Accept the parent in a nonjudgmental way?

• Help the parent feel competent as a parent?

• Remember personal details about the child or family when speaking to the parent?

• Provide enough time to talk so the parent doesn’t feel rushed?

• Treat the parent as a person rather than as a “case”?

• Treat the parent as an equal rather than as a parent of a patient/student (e.g., by not referring to the parent as “Mom” or “Dad”?)

**MPOC subscale coding**

Two parents of children with disabilities were recruited in order to complete the MPOC-56 Respectful and Supportive Care subscale for each role play video. One parent rater was recruited online through a private Facebook group, designated for professionals who work with children who use AAC and parents of children who use AAC. The other parent rater was recruited with assistance from an Autistic Support Special Educator known to the principal investigator. Demographic information for the two parent raters can be found in Table 2-3.
The parent raters were told that the study was being conducted in order to determine if an online training was effective in teaching pre-service SLPs a strategy to improve interactions with parents. They were blind to the conditions and procedures of the study.

The two parent raters were trained by watching a 10-minute training video developed by the principal investigator. The goals of the training were to instruct the parents in how to access the videos and how to complete the MPOC-56 subscale. Following the training, the parent raters practiced coding three practice videos by completing the MPOC-56 subscale for each video. The MPOC data was collected via REDcap. Similar to the LAFF coding procedures, the MPOC was placed online in order to allow the parent raters to view the video and MPOC subscale side-by-side. Once the parent raters felt prepared to begin coding, they were granted access to the secure, password-protected digital storage system (i.e., a “BOX”), which contained the role play videos.
in a balanced order. The videos were balanced in the same manner as described earlier (i.e., by separating the 45 videos into 3 groups of 15 videos, and including a similar number of role plays from each group of participants and from each condition in each group of videos). Once each parent rated each of the 45 role play videos, their ratings were averaged for one composite MPOC subscale score per video.

Inter-and intra-rater reliability of the MPOC-56 Respectful and Supportive Care subscale

In order to judge whether the two parents agreed on their perceptions of family-centered skills, an interrater reliability analysis using the weighted Kappa coefficient (Cohen, 1968) was performed to determine agreement among the parents. A weighted Kappa coefficient is often used for data from ordered scales (i.e., Likert scale) because it distinguishes between different types of disagreement (Viera & Garrett, 2005). Two scores that differ by a small amount (e.g., 4 and 5) are considered “less disagreement” than two scores that differ by a large amount (e.g., 1 and 5). Perfect agreement would equate to a weighted kappa of 1, and chance agreement would equate to 0 (Viera & Garrett, 2005). The interrater reliability for the parents was found to be $\kappa_w = 0.132$ (p <0.001), 95% CI (0.080, 0.183). The Kappa coefficient value indicated slight agreement between the two parents (Landis & Koch, 1977), meaning that the two parent raters only slightly agreed when rating the family-centered skills of the pre-service SLPs.

In addition to measuring the agreement between the two parents’ perceptions, it is also important to consider the consistency between the parents’ ratings. A correlation coefficient was used to measure the consistency between the two parents in terms of the relative rank ordering of the pre-service SLPs. For example, if the two parent raters perceive the same SLPs as less family-centered and the same SLPs as more family-centered (regardless of the scores given), the correlation coefficient will be high. The two parents’ MPOC ratings were determined to have a
A statistically significant linear relationship \((r = 0.377, n = 333, p < .001)\). Although statistically significant, the correlational strength of this relationship is considered weak to moderate, depending on the interpretation classifications used (Cohen, 1988; Evans, 1996). The direction of the relationship was positive, meaning that when one parent’s scores increased, the other’s tended to increase as well. This additionally means that if one parent tended to provide lower scores overall, it appears that both parent raters still perceived the relative rank ordering of the SLPs similarly.

In order to measure whether observer drift occurred, the two parent raters re-watched and scored two of the training videos after the 16th and 32nd role play videos (i.e., one-third and two-thirds of the way through the role play videos). As shown in Table 2-4, the parents provided slightly different scores for the same video at different time points. An analysis of the reliability between each parent’s ratings at different points in time was performed using the weighted Kappa coefficient \((\kappa_w)\). Substantial agreement was found for Parent 1 when she scored the same videos twice, \(\kappa_w = 0.617 (p <0.001)\), 95% CI (0.438, 0.796), and fair agreement was found for Parent 2, \(\kappa_w= 0.304 (p = 0.015)\), 95% CI (0.075, 0.532). Although some drift occurred, procedures were set in place to compensate for this occurrence, such as the counterbalancing of videos and blind coding.

<table>
<thead>
<tr>
<th>Video 1</th>
<th>Video 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Before coding</td>
<td>After 16 videos coded</td>
</tr>
<tr>
<td>Parent 1</td>
<td>2.88</td>
</tr>
<tr>
<td>Parent 2</td>
<td>3.38</td>
</tr>
</tbody>
</table>
Data analysis

The following analyses were completed in order to answer the two research questions.

1) What are the effects of an online training in the LAFF strategy on pre-service SLPs’ use of the LAFF strategy skills with simulated parents?

In order to determine the effects of the online training, two planned t-tests were conducted. An independent samples t-test was used to compare the gain in LAFF scores of Group 1 between Time 1 and Time 2 and the gain in LAFF scores of Group 2 between Time 1 and Time 2. It was hypothesized that the gain from Time 1 to Time 2 would be greater for Group 1, since they received training during this time. A paired samples t-test was also conducted to compare the gain in LAFF scores of Group 2 between Time 1 and Time 2 to their gain in LAFF scores between Time 2 and Time 3. It was hypothesized that Group 2 would demonstrate greater gains from Time 2 to Time 3, since they received training during this time.

2) What are the effects of an online training in the LAFF strategy on parent raters’ perceptions of the pre-service SLPs’ family-centered behaviors (as measured by the MPOC-56 RSC subscale)?

Two t-tests were similarly conducted in order to determine the effects of the online training on parent raters’ perceptions. An independent samples t-test was used to compare the gain in MPOC scores of Group 1 between Time 1 and Time 2 and the gain in MPOC scores of Group 2 between Time 1 and Time 2. It was hypothesized that the gain from Time 1 to Time 2 would be greater for Group 1, since they received training during this time. A paired samples t-test was used to compare the gain in MPOC scores of Group 2 between Time 1 and Time 2 to their gain in MPOC scores between Time 2 and Time 3. It was hypothesized that Group 2 would demonstrate greater gains from Time 2 to Time 3, since they received training during this time.
In support of the use of parametric statistics with Likert data, such as the MPOC subscale data, a substantial literature suggests that parametric statistics can be appropriately used for such data (e.g. see Norman, 2010). Parametric tests are based on the assumption of normality, and for sample sizes greater than 5, the means are approximately normally distributed regardless of the original distribution (i.e., the central limit theorem). According to Norman (2010), decades of research into the robustness of parametric tests conclude that “parametric methods examining differences between means, for sample sizes greater than 5, do not require the assumption of normality, and will yield nearly correct answers even for manifestly nonnormal and asymmetric distributions. . .” (p. 628). For these reasons, parametric statistics were used for data analysis.

Social validity

Following the last role play, all of the participating pre-service SLPs were asked a set of questions aimed at assessing the social validity of the training content and the training offered through an online platform (see Appendix L). The questions specifically evaluated: (a) the perceived usefulness of the relational strategies targeted, (b) the practicality of offering the training online, and (c) the usefulness of the various components of the online training. Additional questions were included to assess the validity of the use of simulated role plays as measures in this study.
Chapter 3

Results

The results are presented in the following order: (a) LAFF scoring rubric data, (b) time spent completing the online training, (c) MPOC-56 Respectful and Supportive Care subscale data, (d) relationship between LAFF scores and MPOC-56 Respectful and Supportive Care subscale scores, and (e) social validity. Parametric statistics are presented for the LAFF scoring data and MPOC data. Given the small number of participants in each group, analyses using non-parametric statistics were also completed, which can be found in Appendix M.

LAFF scoring rubric

The LAFF scoring data will be presented in the following order: (a) mean LAFF scores for each group of participants, (b) LAFF scores for individual participants, (c) gain scores, and (d) performance data on the specific LAFF skills.

The means and standard deviations on the LAFF scoring rubric for both groups at each time point can be found in Table 3-1. No statistically significant difference was observed between the two groups at Time 1, indicating that the groups' initial behavior was similar, t(13) = -.672, p = .513. Group 1 averaged 4.00 out of 12 on the LAFF rubric at Time 1, 9.00 at Time 2, and 9.38 at Time 3. Group 2 averaged 4.43 at Time 1, 4.00 at Time 2, and 10.14 at Time 3. Additionally, there was not a statistically significant effect for simulated parent when included as a factor in an ANOVA completed for the LAFF data, indicating that the simulated parent did not impact the LAFF scores. Table 3-2 lists the individual LAFF scores for each participant at each time point.
The question of interest was whether the training resulted in improvements in the LAFF scores. Accordingly, the gain scores for each group were calculated between Time 1 and Time 2, and between Time 2 and Time 3 (see Table 3-3). The gain from Time 1 to Time 2 for Group 1 demonstrated the effects of the training as did the gain from Time 2 to Time 3 for Group 2.

### Table 3-1: Mean LAFF scores out of 12 for the Group 1 and Group 2 at each time point.

<table>
<thead>
<tr>
<th>Group</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Group 1</td>
<td>4.00 (.93)</td>
<td>9.00 (2.73)</td>
<td>9.38 (2.07)</td>
</tr>
<tr>
<td>(n=8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>4.43 (1.51)</td>
<td>4.00 (1.41)</td>
<td>10.14 (.90)</td>
</tr>
<tr>
<td>(n=7)</td>
<td></td>
<td></td>
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</tbody>
</table>

### Table 3-2: Individual LAFF scores out of 12 for the Group 1 and Group 2 at each time point.

<table>
<thead>
<tr>
<th>Group</th>
<th>LAFF Score</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>8</td>
<td>7</td>
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<td>2</td>
<td>5</td>
<td>11</td>
<td>10</td>
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<td>3</td>
<td>4</td>
<td>11</td>
<td>12</td>
<td></td>
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<td>4</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td></td>
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<td>5</td>
<td>3</td>
<td>11</td>
<td>9</td>
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<td>6</td>
<td>5</td>
<td>11</td>
<td>11</td>
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<tr>
<td>7</td>
<td>4</td>
<td>6</td>
<td>9</td>
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<tr>
<td>8</td>
<td>3</td>
<td>10</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4</td>
<td>9</td>
<td>9.38</td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5</td>
<td>4</td>
<td>12</td>
<td></td>
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<tr>
<td>10</td>
<td>6</td>
<td>4</td>
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<td>11</td>
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<td>10</td>
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<tr>
<td>12</td>
<td>5</td>
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<tr>
<td>14</td>
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<td>3</td>
<td>10</td>
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<tr>
<td>15</td>
<td>3</td>
<td>3</td>
<td>10</td>
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<td>16</td>
<td>6</td>
<td>7</td>
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<tr>
<td>Mean</td>
<td>4.43</td>
<td>4</td>
<td>10.14</td>
<td></td>
</tr>
</tbody>
</table>

The question of interest was whether the training resulted in improvements in the LAFF scores. Accordingly, the gain scores for each group were calculated between Time 1 and Time 2, and between Time 2 and Time 3 (see Table 3-3). The gain from Time 1 to Time 2 for Group 1 demonstrated the effects of the training as did the gain from Time 2 to Time 3 for Group 2.
change from Time 2 to Time 3 for Group 1 represented a measure of maintenance of training effects.

Table 3-3: Gain in LAFF scores for the Group 1 and Group 2 between Time 1 and Time 2 and between Time 2 and Time 3

<table>
<thead>
<tr>
<th>Group</th>
<th>Time 1 to Time 2</th>
<th>Time 2 to Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>+5.00</td>
<td>+0.38</td>
</tr>
<tr>
<td>(n=8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>-0.43</td>
<td>+6.14</td>
</tr>
<tr>
<td>(n=7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

An independent t-test was completed in order to compare the gains in LAFF scores for each group from Time 1 to Time 2. It was hypothesized that Group 1 would demonstrate greater gains since they completed the training between Time 1 and Time 2.

Results of the t-test showed that Group 1 had statistically significant greater gains (+5.00 ± 2.39) from Time 1 to Time 2 compared to the gains made by Group 2 (-0.43 ± 1.13), t(13) = 5.475, p < .001, suggesting that the training was effective in increasing Group 1’s use of the LAFF strategy in therole plays with simulated parents.

A paired samples t-test was also completed in order to compare the gains in LAFF scores for Group 2 from Time 1 to Time 2 (i.e., pre-training) to their gains from Time 2 to Time 3 (i.e., post-training). It was hypothesized that Group 2 would demonstrate greater gains between Time 2 and Time 3, since they completed the training during this time. It was determined that Group 2 had statistically significant greater gains (+6.14 ± 1.68) from Time 2 to Time 3 compared to their gains from Time 1 to Time 2 (-0.43 ± 1.13), t(6) = 7.813, p < .001, suggesting that the training was effective in increasing Group 2’s use of the LAFF strategy in the role plays with simulated parents.

As is apparent in Table 3-2, there was some variation across the participants in terms of their initial score pre-training: range from 2-6 out of 12. There was also some variation across
participants in terms of the impact of the training; gain scores ranged from +1 to +8 for Group 1 and +3 to +8 for Group 2. Only two participants received perfect LAFF post-training (Participant 3 and 9), indicating that they demonstrated all 12 relational skills.

A more detailed analysis of the LAFF data was completed and indicated variation across the participants and groups in terms of which strategy steps were used. Table 3-3 shows the percentage of participants who demonstrated each component skill of the LAFF strategy at each time point.
Considering the first step of LAFF (i.e., Listen, empathize, and communicate respect), the majority of the participants demonstrated the component skills of this step post-training. Greeting the parent and asking about the reason for the meeting were demonstrated by almost all of the participants pre-and post-training. Making a statement of empathy and thanking the parent for meeting were observed less frequently pre-training (i.e., 25% of participants in Group 1 43% in Group 2). Post-training, the majority of the participants demonstrated both skills. In order to demonstrate appropriate body language, participants needed to sit beside the parent or diagonally

### Table 3-4: Percentage of participants who completed each LAFF skill at each time point.

<table>
<thead>
<tr>
<th>Listen, empathize, communicate respect</th>
<th>Group 1</th>
<th></th>
<th></th>
<th>Group 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Time 1</td>
<td>Time 2</td>
<td>Time 3</td>
<td>Time 1</td>
<td>Time 2</td>
<td>Time 3</td>
</tr>
<tr>
<td>Greet the parent</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Ask about reason for meeting</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>71</td>
<td>86</td>
</tr>
<tr>
<td>Make a statement of empathy</td>
<td>25</td>
<td>75</td>
<td>88</td>
<td>43</td>
<td>43</td>
<td>71</td>
</tr>
<tr>
<td>Thank the parent for meeting</td>
<td>25</td>
<td>88</td>
<td>100</td>
<td>43</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>Demonstrate appropriate body language</td>
<td>13</td>
<td>63</td>
<td>63</td>
<td>29</td>
<td>43</td>
<td>100</td>
</tr>
<tr>
<td><strong>Ask questions</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask for permission to take notes</td>
<td>0</td>
<td>88</td>
<td>88</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Ask relevant open-ended questions</td>
<td>38</td>
<td>38</td>
<td>63</td>
<td>29</td>
<td>29</td>
<td>57</td>
</tr>
<tr>
<td><strong>Focus on the issues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summarize the parent’s concern</td>
<td>0</td>
<td>75</td>
<td>75</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Check for accuracy</td>
<td>0</td>
<td>50</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>57</td>
</tr>
<tr>
<td>Ask if the parent would like to add anything</td>
<td>63</td>
<td>63</td>
<td>88</td>
<td>71</td>
<td>71</td>
<td>71</td>
</tr>
<tr>
<td><strong>Find a first step</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consider the information provided and identify a plan</td>
<td>38</td>
<td>88</td>
<td>75</td>
<td>29</td>
<td>29</td>
<td>86</td>
</tr>
<tr>
<td>Plan a follow-up meeting</td>
<td>0</td>
<td>75</td>
<td>50</td>
<td>0</td>
<td>0</td>
<td>86</td>
</tr>
</tbody>
</table>

*Note.* Percentage of participants who completed each LAFF skill immediately following the training (i.e., post-training) are in bold.
from the parent. This was rarely observed during pre-training role plays. During the role play immediately following training (Time 2 for Group 1, Time 3 for Group 2), 12 out of the 15 participants across the two groups demonstrated this skill.

The next step of LAFF (i.e., Ask questions) consists of two skills, asking permission to take notes and asking two or more relevant, open-ended questions. No participants asked for permission to take notes pre-training, but almost all asked for permission post-training. Few of the participants asked relevant open-ended questions prior to the training; in Group 1, 3 of the 8 participants demonstrated this skill at Time 2 (immediately following the training), and 5 participants demonstrated this skill at Time 3. In Group 2, 4 out of the 7 participants (57%) demonstrated this skill post-training at Time 3.

The third step of LAFF (i.e., Focus on the issues) consists of three component skills. Across all pre-training role plays, none of the participants in either group summarized the parent’s concern or checked for accuracy. During the post-training role plays, almost all of the participants summarized the parent’s concern, and about half of the participants checked for accuracy. The third skill of this step, asking if the parent would like to add anything, was demonstrated by a similar percentage of participants across all role plays, pre-and post.

The last step of LAFF (i.e., Find a first step) consists of two component skills. The first skill is to identify a plan with the parent, which was demonstrated by approximately one third of the total participants (33%) during all pre-training role plays. Immediately following the training, almost all of the participants demonstrated this behavior during the role plays (88% of Group 1, and 86% of Group 2). The last skill of LAFF is to plan a follow-up meeting, which was never observed during any of the pre-training role plays. During the role plays immediately following the training, 12 out of the 15 participants across the two groups planned a follow-up meeting with the simulated parent.
**Individual LAFF data**

In addition to assessing the overall group behaviors, it is necessary to consider the performance patterns of the individual participants. As shown in Table 3-5, all pre-service SLPs improved their implementation of the LAFF strategy following instruction. The hypothesized pattern of results for Group 1 was a large gain from Time 1 to Time 2 after training, and a smaller change from Time 2 to Time 3 demonstrating maintenance of the gains. Four of the pre-service SLPs adhered to this pattern, as demonstrated in Table 3-5. Participant 4 made a small gain from Time 1 to Time 2, and a small gain from Time 2 to Time 3. The remaining three participants (Participant 1, 2, and 5) made large gains from Time 1 to Time 2, but demonstrated a small loss at Time 3. The hypothesized pattern for Group 2 was no gain or a small gain from Time 1 to Time 2, and a large gain from Time 2 to Time 3. All pre-service SLPs demonstrated this pattern. Although all pre-service SLPs increased their implementation of the LAFF strategy skills, the amount of improvement varied across the SLPs ranging from an increase of 1 skill to 8 skills in the LAFF strategy.
Table 3-5: Gain in LAFF scores for each pre-service SLP at Time 2 and Time 3

<table>
<thead>
<tr>
<th>LAFF gain (pre-training score)</th>
<th>Group 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+5 (3)</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>+6 (5)</td>
<td>-1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>+7 (4)</td>
<td>+1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>+1 (3)</td>
<td>+2</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>+8 (3)</td>
<td>-2</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>+6 (5)</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>+2 (4)</td>
<td>+3</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>+7 (3)</td>
<td>+1</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>-1</td>
<td>+8 (4)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>-2</td>
<td>+5 (4)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>-1</td>
<td>+7 (3)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>-1</td>
<td>+6 (4)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>+1</td>
<td>+7 (3)</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>+7 (3)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>+1</td>
<td>+3 (7)</td>
<td></td>
</tr>
</tbody>
</table>

Note. Gains in bold are those demonstrated immediately following completion of the online training.

Time spent in online training

The pre-service SLPs varied in the amount of time spent accessing the online instruction (range: 29 to 101 minutes; average: 61 minutes), as well as the number of completed training components. Group 1 spent an average of 56 minutes accessing the training, while Group 2 spent an average of 66 minutes. Table 3-6 shows the pre-service SLPs in ascending order according to the time spent accessing the online training, as well as the pre-service SLPs who did not complete...
all components of the training. As shown, 8 of the pre-service SLPs completed all training components, 5 completed all components except one application exercise, and two completed all training components except the two application exercises.

The majority of the pre-service SLPs (73%) demonstrated 10 or more of the strategy skills during the role play immediately following the training (i.e., Time 2 for Group 1 and Time 3 for Group 2). Only one of the pre-service SLPs demonstrated all 12 of the strategy skills immediately following the training (i.e., Participant 9).

Table 3-6: LAFF scores post-training in order of instructional time.

<table>
<thead>
<tr>
<th></th>
<th>LAFF score post-training*</th>
<th>Length of instructional time (minutes)</th>
<th>Incomplete training components</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group 1</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>8</td>
<td>45</td>
<td>Generalization activity</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>75</td>
<td>None</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>48</td>
<td>None</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>45</td>
<td>Generalization activity</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>68</td>
<td>None</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
<td>56</td>
<td>Advanced practice</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>31</td>
<td>None</td>
</tr>
<tr>
<td>8</td>
<td>10</td>
<td>82</td>
<td>None</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>9</td>
<td>56.25</td>
<td></td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>12</td>
<td>78</td>
<td>None</td>
</tr>
<tr>
<td>10</td>
<td>9</td>
<td>29</td>
<td>Generalization activity</td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>86</td>
<td>Advanced practice and Generalization activity</td>
</tr>
<tr>
<td>12</td>
<td>10</td>
<td>53</td>
<td>Advanced practice</td>
</tr>
<tr>
<td>14</td>
<td>10</td>
<td>76</td>
<td>None</td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>43</td>
<td>Advanced practice and Generalization activity</td>
</tr>
<tr>
<td>16</td>
<td>10</td>
<td>101</td>
<td>None</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>10.14</td>
<td>66.57</td>
<td></td>
</tr>
</tbody>
</table>

*Note. LAFF score at Time 2 for Group 1 and Time 3 for Group 2.*
In order to assess the relationship between the LAFF score post-training and the time spent accessing the online training, a Pearson correlation coefficient was computed. A strong positive relationship was found between the LAFF scores and time spent (Cohen, 1988); however, the correlation was not significant \( r = 0.503, n = 15, p = .056 \).

**MPOC-56 Respectful and Supportive Care subscale**

The MPOC-56 subscale data will be presented in the following order: (a) mean MPOC-56 subscale scores for each group of participants, (b) mean MPOC-56 subscale scores for individual participants, (c) gain scores, and (d) performance data on the specific MPOC-56 subscale items.

The MPOC-56 subscale was completed by the two parent raters at each of the three time points. The means and standard deviations for the MPOC scores can be found in Table 3-4. Group 1 averaged 3.85 out of 7 on the MPOC subscale at Time 1, 4.88 at Time 2 (after training), and 4.83 at Time 3. Group 2 averaged 4.60 at Time 1, 4.87 at Time 2, and 5.31 at Time 3 (after training). Although Group 2 began with a higher score on the MPOC subscale compared to Group 1, this difference was determined to be statistically non-significant, \( t(13) = -1.383, p = .190 \). Additionally, there was not a statistically significant effect for simulated parent when included as a factor in an ANOVA completed for the MPOC subscale data, indicating that the simulated parent did not impact the MPOC subscale scores. Table 3-8 lists the average MPOC scores across the two parents for each participant at each time point. The individual MPOC scores for each participant from each parent rater can be found in Appendix N.
Similar to the LAFF scoring rubric, the gain scores were again calculated since the question of interest was whether training in the LAFF strategy resulted in gains on the MPOC-56 subscale scores. The mean gain scores from both parent raters for each group at each time point are shown in Table 3-7.

<table>
<thead>
<tr>
<th>Group</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>Group 1</td>
<td>3.85 (.90)</td>
<td>4.88 (.66)</td>
<td>4.83 (.49)</td>
</tr>
<tr>
<td>(n=8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 2</td>
<td>4.60 (1.20)</td>
<td>4.87 (.73)</td>
<td>5.31 (.58)</td>
</tr>
<tr>
<td>(n=7)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3-8: Mean MPOC-56 subscale scores across the parent raters for each participant across the three time points.

<table>
<thead>
<tr>
<th>Group</th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3.25</td>
<td>4.86</td>
<td>4.81</td>
</tr>
<tr>
<td>2</td>
<td>5.38</td>
<td>5.25</td>
<td>4.81</td>
</tr>
<tr>
<td>3</td>
<td>3.75</td>
<td>4.79</td>
<td>5.25</td>
</tr>
<tr>
<td>4</td>
<td>2.75</td>
<td>4.25</td>
<td>3.94</td>
</tr>
<tr>
<td>5</td>
<td>5.06</td>
<td>5.94</td>
<td>5.29</td>
</tr>
<tr>
<td>6</td>
<td>3.44</td>
<td>5.50</td>
<td>5.43</td>
</tr>
<tr>
<td>7</td>
<td>3.69</td>
<td>4.43</td>
<td>4.50</td>
</tr>
<tr>
<td>8</td>
<td>3.59</td>
<td>4.00</td>
<td>4.63</td>
</tr>
<tr>
<td>Mean</td>
<td>3.85</td>
<td>4.88</td>
<td>4.83</td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5.75</td>
<td>5.25</td>
<td>5.36</td>
</tr>
<tr>
<td>10</td>
<td>5.94</td>
<td>5.69</td>
<td>5.31</td>
</tr>
<tr>
<td>11</td>
<td>4.71</td>
<td>4.63</td>
<td>5.19</td>
</tr>
<tr>
<td>12</td>
<td>3.94</td>
<td>5.06</td>
<td>4.38</td>
</tr>
<tr>
<td>14</td>
<td>4.31</td>
<td>4.75</td>
<td>5.88</td>
</tr>
<tr>
<td>15</td>
<td>2.44</td>
<td>3.43</td>
<td>4.94</td>
</tr>
<tr>
<td>16</td>
<td>5.13</td>
<td>5.31</td>
<td>6.13</td>
</tr>
<tr>
<td>Mean</td>
<td>4.60</td>
<td>4.87</td>
<td>5.31</td>
</tr>
</tbody>
</table>

Similar to the LAFF scoring rubric, the gain scores were again calculated since the question of interest was whether training in the LAFF strategy resulted in gains on the MPOC-56 subscale scores. The mean gain scores from both parent raters for each group at each time point.
can be found in Table 3-9. The mean gain scores of the individual pre-service SLPs can be found in Table 3-10.

Table 3-9: Gain in MPOC-56 Respectful and Supportive Care subscale scores for Group 1 and Group 2 between Time 1 and Time 2 and between Time 2 and Time 3.

<table>
<thead>
<tr>
<th>Group</th>
<th>Time 1 to Time 2</th>
<th>Time 2 to Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1 ((n=8))</td>
<td>+1.02</td>
<td>-0.05</td>
</tr>
<tr>
<td>Group 2 ((n=7))</td>
<td>+0.27</td>
<td>+0.44</td>
</tr>
</tbody>
</table>

An independent t-test was completed in order to compare the gains in MPOC subscale scores for each group from Time 1 to Time 2. It was hypothesized that Group 1 would demonstrate greater gains between Time 1 and Time 2 than Group 2. It was determined that Group 1 did have statistically significant greater gains (+1.02 ± .69) from Time 1 to Time 2 compared to the gains made by Group 2 (+0.27 ± .62), \(t(13) = 2.216, p = .045\), suggesting that on average, the parents perceived Group 1 as demonstrating improved family-centered behaviors post-training.

A paired samples t-test was then completed in order to compare the gains in MPOC scores for Group 2 from Time 1 to Time 2 (i.e., pre-training) to their gains from Time 2 to Time 3 (i.e., post-training). It was hypothesized that Group 2 would demonstrate greater gains between Time 2 and Time 3 (after training) than between Time 1 and Time 2 (before training). It was determined that Group 2 did not have statistically significant greater gains (+0.44 ± .80) from Time 2 to Time 3 compared to their gains from Time 1 to Time 2 (+0.27 ± .62), \(t(6) = .483, p = .646\), suggesting that on average, the parents did not perceive Group 2 as demonstrating improved family-centered behaviors post-training.
Table 3-11 lists the mean scores across the two parent raters for each item on the MPOC-56 subscale, for the two groups at each time point. As shown, the mean scores for each item increased from pre-training to post-training for both groups of participants (i.e., between Time 1 and Time 2 for Group 1 and between Time 2 and 3 for Group 2). Although all the scores increased from pre-to post, there were three items in which participants consistently improved following training in both Group 1 and Group 2. Ratings for providing a caring atmosphere, providing enough time to talk, and treating the parent as an equal all showed gains of at least +0.40 in both groups following training.
As was the case with the LAFF data, it is necessary to consider the individual performance patterns, in addition to assessing the overall group behaviors. If a treatment effect had occurred, the hypothesized pattern of results for Group 1 was a significant gain from Time 1 to Time 2 (post-training) and a smaller or similar change from Time 2 to Time 3 (maintenance). Considering the data shown in Table 3-10, of the 8 participants in Group 1, 7 (88%) adhered to
the larger group pattern. Participant 2’s performance differed from the hypothesized results as she did not demonstrate any gains in MPOC subscale scores across the role plays.

The hypothesized pattern of group results for Group 2 differed in that no gain or a small gain was expected from Time 1 to Time 2 (pre-training), and then a larger gain from Time 2 to Time 3 (post-training). Of the 7 participants in Group 2, 5 of the participants demonstrated this pattern with no gain or a small gain from Time 1 to Time 2, and a larger gain from Time 2 to Time 3. Although Participant 9 adhered to the hypothesized pattern of results and made gains from Time 2 to Time 3, it should be noted that they were minimal (i.e., +0.11).

The remaining two participants in Group 2 differed from the group results. Participant 10 did not show gains across the study, similar to Participant 2 in Group 1. The most unexpected pattern, however, was demonstrated by Participant 12. Participant 12 made large gains from Time 1 to Time 2, which were both pre-training, but then received a lower MPOC score post-training.

After further inspection of these atypical performance patterns, it was revealed that the two pre-service SLPs who made no gains (i.e., Participants 2 and 10), and the pre-service SLP who made the smallest gain (i.e., Participant 9), all received the highest three mean MPOC scores during the pre-training role play. Table 3-12 shows the mean MPOC item scores for these three pre-service SLPs at Time 1. As shown, on average, the parents believed that the pre-service SLPs were demonstrating the family-centered behaviors “to a fairly great extent” (i.e., a “5” score) or “to a great extent” (i.e., a “6” score) prior to training.
Relationship between LAFF and MPOC subscale scores

In order to assess the relationship between the LAFF scores and MPOC subscale scores, separate Pearson correlation coefficients were computed at each time point (see Table 3-13 for the individual LAFF and mean MPOC-56 scores for each participant). The two measures at Time 1 were determined to have a strong, statistically significant linear relationship ($r = 0.581$, $n = 15$, $p = .023$). The direction of the relationship is positive, meaning that the two variables tend to increase together (i.e., greater LAFF scores are associated with greater MPOC scores). There was
not a statistically significant correlation between the two measures at Time 2 \((r = 0.322, n = 15, \ p = .242)\) nor Time 3 \((r = 0.497, n = 15, p = .059)\).

Table 3-13: LAFF and MPOC scores for each participant across the three time points.

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LAFF</td>
<td>MPOC</td>
<td>LAFF</td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
<td></td>
<td></td>
<td></td>
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<td>16</td>
<td>6</td>
<td>5.13</td>
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</table>

**Social validity**

The participants completed the social validity questions immediately following the last role play (see Appendix O for each participant's answers to social validity questions).

In response to the social validity questions, 100% of the participants stated that they would recommend that others learn the LAFF strategy. Six simply stated “Yes”, while others provided additional thoughts. Two pre-service SLPs reported that they were more confident after the training. Five reported that the LAFF strategy provided scaffolding support for providing a good basis for what an ideal parent interaction should look like and helping incorporate appropriate behaviors during interactions. Two participants reported that the LAFF strategy was
important to learn and that it would be a good addition to the graduate curriculum. One pre-service SLP reported that the strategy was easy to remember, and another reported that it was very informative.

The pre-service SLPs additionally offered many benefits to using the LAFF strategy. Seven (47%) of the pre-service SLPs reported that the strategy provided a step-by-step process and a helpful framework to use during the interactions. One stated that the strategy was easy to remember and included intuitive steps. Another reported that when using the strategy, the conversation flowed better since she knew what to say. Benefits related to family-centered services were also reported. Ten (67%) of the pre-service SLPs reported that the strategy allowed the demonstration of specific skills, such as, providing parents time to talk, validating parents’ feelings, listening to parents, conveying empathy, building rapport, and developing a strong relationship. Lastly, one pre-service SLP reported that the strategy improves confidence and another reported that it makes the SLP seem more professional.

In addition to benefits of using the LAFF strategy, the pre-service SLPs were asked about disadvantages of strategy use. Three (20%) of the pre-service SLPs reported that there were no disadvantages to using the LAFF strategy. Twelve (80%) of the pre-service SLPs reported that using the strategy could be viewed as scripted and unnatural. Some described the strategy as “stilted” and “rigid” and stated that you could be perceived as going through the motions. Two (13%) of the pre-service SLPs also stated that the strategy may not be appropriate for all situations.

The participants also shared situations in which they thought the strategy could be helpful. Ten (67%) of the pre-service SLPs reported that the strategy would be helpful during interactions with parents. One specifically stated during first encounters with parents. Two added that the strategy could be helpful during IEP meetings with parents. Four (27%) reported that the strategy could be helpful when interacting with clients themselves. Three (20%) pre-service SLPs
reported that the strategy could be used with anyone that has a concern, including personal friends and family, or a professor or student concerning coursework. One pre-service SLP reported that the strategy could be helpful during evaluations of communication disorders, and another reported the strategy could be beneficial during meetings that last less than 5 minutes.

The participants shared their opinions regarding the online training environment and the use of simulated parents, which is shown in Table 3-12.

Table 3-14: Number and percentage of participant responses to social validity questions.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>An online environment was effective for teaching the LAFF strategy.</td>
<td>2 (12%)</td>
<td>6 (38%)</td>
<td>8 (50%)</td>
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<tr>
<td>An in-person training would be more effective for teaching the strategy.</td>
<td>5 (31%)</td>
<td>8 (50%)</td>
<td>2 (12%)</td>
<td>1 (6%)</td>
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Chapter 4

Discussion

The goal of this study was to develop and evaluate an online training to teach pre-service SLPs a relational skills strategy in order to increase their demonstration of family-centered behaviors during interactions with parents of children with CCN. Overall, the training appeared to provide an effective, efficient, and socially valid means of teaching pre-service SLPs how to implement the LAFF strategy. All participants increased their use of the LAFF strategy following the completion of the online training. Most of the participants also improved in their demonstration of family-centered behaviors, as measured by real parents of children with disabilities. In this chapter, the effectiveness of the online training is discussed, as well as the clinical implications, limitations of the study, and future research directions.

Effectiveness of intervention

LAFF strategy

This is the first study to investigate the effectiveness of teaching the LAFF strategy in an online environment. The primary research question was whether the online training would improve the pre-service SLPs’ use of the LAFF strategy skills during role plays with simulated parents. As hypothesized, the online training resulted in an increase in the implementation of the LAFF strategy skills during post-training interactions for Group 1 and Group 2. After a relatively short period of instruction (i.e., average of 61 minutes), Group 1 improved from demonstrating a
mean of 4 skills pre-training to a mean of 9 of the 12 skills post-training and Group 2 improved
from a mean of 4 skills to a mean of 10 skills post-training.

Although direct comparisons cannot be made due to varying methods of measurement
(i.e., different scoring rubrics), similar improvements were observed in the present study
compared to the previous LAFF investigations. For example, the first LAFF study (McNaughton
et al., 2008) used a pre-post design and a scoring rubric out of 20 to investigate the effects of an
in-person LAFF training for pre-service teachers. After 120 minutes of in-class instruction in the
LAFF strategy and 30 minutes of outside class activities, the pre-service teachers improved from
a score of 4 to 16 (medians). A later LAFF investigation (Thistle & McNaughton, 2015) also used
a pre-post design and a scoring rubric out of 20, but with pre-service SLPs. After 90 minutes of
in-class instruction, the pre-service SLPs improved from an average score of 4.17 to 17.43. In the
same year, Vostal et al. (2015) evaluated pre-service teachers’ use of the LAFF strategy before
and after 150 minutes of in-person training using a scoring rubric out of 17. Mean scores
improved from 3.6 at pre-test to 15.8 at post-test. Thus, despite the switch to the online
environment in the current study, the pre-service SLPs were able to make gains in their
implementation of the LAFF strategy.

Considering the various components of the online training, the effectiveness of the
instruction could be attributed to the use of the strategy instruction model, the use of the online
environment, or a combination of the two.

There is much evidence that use of the strategy instruction model leads to positive
outcomes for individuals learning a wide range of skills (e.g., Kent-Walsh et al., 2015), including
pre-service professionals learning the LAFF strategy (McNaughton et al., 2008; Thistle &
McNaughton, 2015; Vostal et al., 2015). Per the strategy instruction framework, the training
included a pre-test, a description of the LAFF strategy skills, a model of the strategy, and the
opportunity to practice the strategy. The components of the training and the stages of strategy
instruction were designed to promote active learning. As stated by Darling-Hammond (1995; p. 13), “…learning is not listening.” Students do not learn by accruing bits of information that eventually lead to understanding. If information is simply transmitted to passive learners, the learners will be limited in their ability to recall the content or transfer the learning to other situations (Darling-Hammond, 1995). Students learn by doing, through direct experiences with the content. For these reasons, the pre-service SLPs were not only provided with information regarding the LAFF strategy, but with opportunities to use and experience the strategy. By following the strategy instruction sequence, all pre-service SLPs improved their use of the LAFF strategy during role play interactions post-training. The findings of this study add support to previous evidence demonstrating the effectiveness of the strategy instruction model when teaching adults without disabilities (e.g., Binger, Kent-Walsh, Berens, Del Campo, & Rivera, 2008; Binger et al., 2010; Douglas et al., 2011; Thistle & McNaughton, 2015).

Although all stages of strategy instruction were incorporated into the online training, it must be noted that some of the pre-service SLPs did not complete all components of instruction. As reported in the previous chapter, some of the pre-service SLPs did not complete the advanced practice activity, the generalization activity, or both activities (i.e., both “application” activities).

These activities were developed in order for the pre-service SLPs to practice their implementation of the LAFF strategy. The pre-service SLPs practiced by viewing video scenarios with pauses and prompts to demonstrate strategy skills. The goal of the two application activities was to learn how to apply the target strategy to meet the demands typically found in the natural environment and to start to build fluency doing so. It is likely that the lack of completing these activities may have impacted the performance of these pre-service SLPs with the strategy post-training. For example, of the four pre-service SLPs who demonstrated the fewest number of strategy skills post-training, three did not complete the generalization activity. This lack of completion of the training by some pre-service SLPs may be one limitation of the online
environment. If the LAFF strategy was taught in a face-to-face setting, instructors would be able to monitor and ensure completion of all activities. Future research should investigate how to ensure completion of all instructional components in an online environment in order to promote mastery of the strategy.

Despite this limitation of the online learning environment, overall the findings show that the strategy instruction procedures were successfully incorporated into an online environment, indicating benefits of online learning. The majority (88%) of the participants reported that the online environment was effective for teaching the LAFF strategy. There are many reasons why the online environment may have promoted the learning of the LAFF strategy.

First, the pre-service SLPs were able to maneuver throughout the online training at their desired pace. As discussed, all pre-service SLPs took varying lengths to complete the training. Additionally, they were able to pause, rewind, or review content as necessary. These are advantages compared to face-to-face instruction, where students must learn and review the same content as others at the same time (Clark, 2016). The online setting additionally allowed the presentation of various types of media (e.g., printed text, graphics, audio, etc.), which have been shown to draw attention to relevant content and improve engagement (Mayer, 2009).

One of the biggest advantages of the online setting may be exposure to step-by-step demonstrations and multiple example scenarios, which have proven beneficial for learning skill sets (Renkl, 2014). For novice learners without knowledge of the strategy, examples are especially important (Clark, 2014). Evidence has shown that the most effective learning of strategy steps results from two or more examples that reflect the same guidelines but vary on their surface features (Clark, 2014; Quilici & Mayer, 1996). In this study, four example scenarios were included which illustrated four SLPs using the same LAFF strategy but with different parents and parent concerns.
Considering that the impact of the online training appeared relatively similar to the impact of in-class training in prior LAFF investigations, the efficiency of the training should be considered. The online training in the current study took participants an average of 61 minutes to complete (range: 29 to 101 minutes), which was less instructional time compared to all previous investigations of LAFF. Again, the efficiency of learning in this study may point to the potential benefits of the online environment and the potential accelerated pace of learning the LAFF strategy.

It also appears that the time spent accessing the training may be related to the pre-service SLPs’ demonstration of the LAFF skills post-training. The four pre-service SLPs who demonstrated the fewest strategy skills all spent 45 minutes or less accessing the training, suggesting that increased instructional time led to improved strategy use during the role plays. Three of these pre-service SLPs (i.e., Participants 1, 4, and 10) additionally did not complete the final application exercise (i.e., post-test/generalization), perhaps confirming the importance of this stage of strategy instruction for ensuring mastery of the instructional content. There was additionally a strong correlation found between time spent and LAFF scores post-training; however, the correlation was only approaching significance with a p-value of .056. These findings suggest that there may be strong relationship between time spent and LAFF score post-training, but there may not be enough data (i.e., small sample size) to make the claim with certainty.

Component skills of LAFF

Although the participants in the present study showed overall improvement in their implementation of the LAFF strategy, there were some strategy skills that were demonstrated less
frequently than others. Two skills—asking open-ended questions, and checking for accuracy—were the least demonstrated skills during the post-training role plays.

**Asking open-ended questions.** As highlighted in the results chapter, eight (53%) of the participants did not demonstrate an adequate number (i.e., 2 or more) of relevant open-ended questions during the post-training role plays. In order to receive credit for the demonstration of this skill, SLPs had to “ask 2 or more relevant open-ended questions to get more information about the problem.” In the role plays immediately following training, only 7 (47%) of the pre-service SLPs demonstrated this skill.

The skill of asking open-ended questions required more thought from the pre-service SLPs compared to many of the other skills in the LAFF strategy. Which questions are relevant may vary based on the actual concerns expressed by the parents. Some of the other LAFF skills are demonstrated the same way, regardless of the parent’s concern (e.g., thanking the parent for meeting, asking for permission to take notes). Asking questions, however, requires active listening and quick thinking on part of the SLP in order to assess the concern and ask an appropriate question to gather relevant information.

Most of the pre-service SLPs asked questions aimed at acquiring specific information, rather than open-ended questions that could promote discussion. These types of questions are sometimes referred to as “data questions”, as they gather facts about the individual or context (AbuSabha, 2013). These types of questions gather information, but do not move a discussion forward or spark the conversation. Considering these questions’ potential for acquiring facts about the parent’s concern, it may not be surprising that the novice SLPs resorted to their use. Some examples of these types of questions from the pre-service SLPs included (a) Have you tried modeling speech? (b) Have you done any hearing or visual assessments? (c) Is he using it at home? (d) Do you think it’s a well-suited device? and (e) Do you have a network of support at
home? These questions only require a short answer from the parent, often in the form of a one-word response.

It seems that the training did not adequately prepare the pre-service SLPs to ask open-ended questions. The skill was taught in a similar way to all other LAFF skills. It was first described, then demonstrated. During the strategy skill description, the pre-service SLPs were presented with four open-ended questions that could be applied to most scenarios: 1) What would I see if I was there? 2) Tell me about a time when this was not a problem; (3) What do you see as the ideal solution; 4) Tell me who else you have spoken with regarding your concern. While practicing in the online environment, the pre-service SLPs may have relied on the four questions without adequately learning how to ask open-ended questions. Contrary to a real interaction, the pre-service SLPs were able to take their time when responding to the video prompts during the practice exercises. When faced with a real parent concern during the role plays, the pre-service SLPs may not have been prepared to generate relevant open-ended questions and adapt in real-time, in response to the parent.

It is also possible that the pre-service SLPs were adequately taught how to ask open-ended questions, but did not demonstrate the skill. The lack of implementation could have been due to contradictory training in other courses or conflicting goals of the individual SLPs. Considering the lack of prior exposure to a family-centered philosophy, it may not be surprising if the pre-service SLPs’ primary goals were to gather information and find a solution, rather than build rapport with the parents.

The observed lack of open-ended questions demonstrated by the pre-service SLPs may indicate an important avenue for future training development, including increased emphasis on building rapport with parents, generating relevant open-ended questions based on parent concerns, and providing more opportunities to practice the skill of asking open-ended questions.
Checking for accuracy. In addition to asking open-ended questions, many of the participants did not “check for accuracy” during the post-training role play. Initially, this was a surprising finding, as it is one of the more routine skills of the strategy and is implemented similarly across all situations. After review of the video role plays, it became clear that the low implementation of this target skill could partly be explained by the operational definition of the component skill. In order to receive credit for the presence of this behavior, the SLP had to “explicitly make a statement or ask a question to check for accuracy” (e.g., “Is that correct?”). In many of the interactions, the parent spontaneously confirmed accuracy (e.g., through head nods, stating “right”, etc.) as the SLP provided the summary of the parent’s concern. In future investigations of LAFF, the simulated parents may need to be trained to not provide confirmatory feedback during the summary. Another consideration may be to collapse the “summary” and “check for accuracy” skills into one skill, since the check for accuracy is dependent on the summary given.

Despite these limitations, overall the online training was an effective and efficient means to teach the pre-service SLPs how to implement the relational skills of the LAFF strategy.

MPOC-56 Respectful and Supportive Care subscale

Another goal of this study was to investigate the effects of the online training in the LAFF strategy on parent observer ratings of the pre-service SLPs’ family-centered behaviors, as measured by the MPOC-56 Respectful and Supportive Care subscale.

It was hypothesized that the parents would perceive the post-training interactions as more family-centered than the pre-training interactions. Most of the participants received higher mean scores on the MPOC subscale after the training. Although most of the pre-service SLPs
demonstrated positive gains post-training, a statistically significant treatment effect was observed only for Group 1. The treatment effect was not replicated for Group 2.

There are many hypotheses to explain the patterns of MPOC data across the pre-service SLPs and the lack of a treatment effect for Group 2, including: a) the differences in group performance at Time 1, b) the relationship between the LAFF strategy skills and the MPOC subscale, and c) the appropriateness of the MPOC as an observational tool.

**Differences in group performance**

First, one potential explanation for the absence of a clear treatment effect is the difference in the MPOC subscale scores between the two groups at Time 1. During the first role play, Group 1 received an average of 3.85 on the 7-point MPOC subscale (i.e., demonstrating relational behaviors “to a small extent”), while Group 2 received a mean of 4.60 on the 7-point scale (i.e., demonstrating relational behaviors “to a moderate extent”).

Of the 8 participants who received the highest MPOC scores at Time 1, 6 were from Group 2. These participants were perceived as more family-centered and thus had less room for improvement compared to Group 1. As discussed in the previous chapter, Participants 9 and 10 (both in Group 2) were perceived as demonstrating many of the family-centered skills “to a great extent” and consequently did not make large gains as a result of the training. With only a small number of participants in Group 2, the performance of a small number of participants can have a significant impact on the group data. Accordingly, the small sample size and the associated lack of power to detect differences may have contributed to the lack of statistically significant effects. Based on a post-hoc power analysis conducted with Group 2’s MPOC subscale means, and considering the within-groups comparison effect size observed in the present study (d = .55), a
sample size of approximately 27 pre-service SLPs would be needed to obtain statistical power at the recommended .80 level (Cohen, 1988). Future studies are necessary with larger groups of pre-service SLPs in order to accurately measure change in MPOC subscale scores from pre-to-post training.

**Relationship between LAFF skills and MPOC subscale**

Other hypotheses for the lack of a clear treatment effect are related to the relationship between the LAFF strategy and the MPOC subscale. As discussed in the previous chapter, the correlations between the LAFF scores and MPOC scores were only statistically significant at Time 1, indicating that increases in the implementation of the LAFF skills did not always lead to increased MPOC scores.

One explanation for the pattern of data may be that the MPOC subscale measures relational skills that go beyond the LAFF strategy. There may be important components of respectful and supportive services that are not encompassed in the LAFF strategy. Potential evidence of this hypothesis is demonstrated by the performance patterns of Participants 10 and 12. Even though the two pre-service SLPs increased their implementation of the LAFF strategy during the post-training role play, they were perceived as less family-centered by both parent raters. Participant 12 additionally demonstrated a pattern in which a decrease in the implementation of LAFF skills led to a large increase in her MPOC score (i.e., from the first pre-training role play to the second pre-training role play). These patterns of performance suggest that behaviors other than the LAFF strategy skills alone impacted the parent observers’ perceptions. In future investigations, it may be necessary to operationalize and teach additional family-centered behaviors such as those represented on the MPOC subscale in order to ensure respectful and
supportive services (e.g., how to remember and include personal details about the child and family during interactions).

Another possibility is that the LAFF strategy skills do contribute to the provision of respectful and supportive services (i.e., the MPOC subscale); however, the pre-service SLPs needed more practice in demonstrating the skills during real interactions. Potential evidence of this hypothesis is demonstrated by correlations between the LAFF and MPOC subscale scores across the three time points. The two scores were correlated initially at Time 1, but not at Time 2 or Time 3. These findings suggest that a lack of fluency may have negatively impacted the MPOC subscale scores, but not the LAFF scores. In a multi-step strategy such as LAFF, practice is necessary in order to ensure fluent performance in the natural setting. It is possible that the MPOC subscale items are more sensitive to natural, fluent demonstrations of family-centered behaviors. Without practice, the pre-service SLPs would likely find it challenging to effectively implement the strategy in a fluid manner.

When asked about disadvantages of the LAFF strategy, twelve (80%) of the pre-service SLPs reported similar comments regarding the “unnaturalness” and “scripted” nature of the strategy. Some of the pre-service SLPs reported how the implementation of the strategy may have negatively impacted their interaction (e.g., “I was constantly thinking about what I should be saying next, then [sic] actually listening to the client.”). It is possible that these comments stemmed from a lack of practice with the strategy. Unfortunately, a limitation of the present study was the lack of information on whether participants practiced the target strategy outside of the online environment. The pre-service SLPs were also limited in that the post-training role plays were scheduled soon after the completion of the training. Future investigations must identify how to best incorporate practice into an online environment and how to ensure completion by all participants in order to promote fluency of strategy implementation.
Another hypothesis to explain the pattern of the MPOC subscale data is the use of the MPOC as an observational tool. As discussed in the Methods, this is the first study to use the MPOC as an observational measure. The MPOC-56 was developed as a self-report measure, in which parents rate the extent to which they experience family-centered services. When completed by parents as intended, there is strong test-retest reliability and good concurrent validity (King et al., 1996; King et al., 2004).

Considering the novel use of the MPOC subscale in the present study, it is unknown if the measure could detect differences when completed by parents as outside observers. Although differences were detected across the time points, there was only minimal agreement between the two parents’ ratings. Despite the good test-retest reliability (ICC = .84) of the MPOC-56, the minimal agreement may suggest that the MPOC-56 is not reliable across observers. As discussed earlier, the MPOC-56 was developed and intended for use as a measure of professional-family relationships, which typically develop over time. It is possible that the tool is not a reliable or valid measure of shorter interactions, such as the role play scenarios in the present study. Future research is necessary to determine whether the MPOC can be used effectively as an observational tool during interactions and relationships of varying lengths.

Though these are all viable hypotheses to explain the lack of effect of the training on the MPOC-56 subscale scores for Group 2, it should not be overlooked that many of these participants made significant gains in their use of family-centered skills as a result of the online training. These changes may be clinically significant. Before the training, some of the participants were perceived as delivering family-centered services “to a small extent”, such as providing a caring atmosphere, helping the parent feel competent, and treating the parent as a person and equal. Following the training, these same participants were viewed as demonstrating these
behaviors “to a great extent”. Considering that 4 of the 7 participants (57%) in Group 2 were perceived by the parents as demonstrating increased family-centered behaviors following the training, it seems that these participants may have made clinically important improvements.

*Individual MPOC subscale scores*

As discussed in the previous chapter, there were four pre-service SLPs who demonstrated atypical performance patterns in their MPOC-56 subscale results—Participants 2, 9, 10, and 12. Participants 2 and 10 were the two participants who did not make gains, and Participant 9 made gains, but they were very modest ones (gain of +0.11). Following inspection of the data, it was revealed that these three participants received the highest three total MPOC-56 subscale scores pre-training during the first role play (all above 5 on the 7-point scale).

Further review of the individual MPOC-56 subscale items for these three participants revealed why gains may not have been observed. For example, Participant 10 averaged 6.5 out of 7 on three of the MPOC items, 6 on four of the items, and 4 on the last item. This implies that the parents believed that this SLP was demonstrating seven of the family-centered behaviors “to a great extent” prior to training, which may help explain why gains were not observed in the following two role plays. Participants 2 and 9 received similar scores on the MPOC subscale, indicating that the parents believed they were demonstrating the family-centered behaviors “to a fairly great extent” (i.e., a “5” score) or “to a great extent” (i.e., a “6” score).

Considering that the parent raters perceived these three pre-service SLPs as demonstrating relational behaviors to a fairly great extent prior to training, it is important to examine which LAFF skills they implemented during the pre-training role plays. With minimal
demonstration of the LAFF strategy at Time 1, the presence of specific skills may highlight which are most important in contributing to family-centered services.

Examination of the LAFF data revealed that Participants 2, 9, and 10 implemented a set of LAFF skills which were not demonstrated by the remaining 11 participants. During the pre-training role plays, all three participants thanked the parent for meeting, asked at least two open-ended questions, and asked if the parent had anything else to add. No other pre-service SLPs demonstrated these three LAFF skills during their pre-training role plays. Only one other pre-service SLP demonstrated 2 of the 3 skills (i.e., thanking the parent and asking if the parent had anything to add) and this participant received the fourth highest average MPOC score from the parent raters (i.e., Participant 16; 5.13 out of 7). These patterns reveal the potential importance of these three LAFF skills, while also highlighting a limitation of the study. The scoring rubric weighted the LAFF skills equally (i.e., score of 1, if present), but they may not necessarily contribute equally to family-centered services. Future research is necessary to investigate which skills contribute most to family-centered services in order to provide the most effective instruction.

Participant 12 was another participant who displayed an atypical pattern, making large gains from Time 1 to Time 2 (both pre-training), but then receiving a lower MPOC score post-training. There are two hypotheses to explain this pattern of behavior. One possibility is that this participant received unusually low MPOC scores for her first role play, and her second role play was actually a more typical demonstration of her family-centered behaviors, and that she didn’t improve in her family-centeredness following the training. An atypical first role play could have been due to nerves, her relationship with the simulated parent, or the fact that it was a new and unknown experience. Another possibility is that she received unusually high scores for the second role-play, the first role play was an accurate representation of her family-centered behaviors, and she potentially improved her use of family-centered skills following the training.
In order to understand her pattern of behavior, examination of her LAFF scores was completed. Even though her MPOC scores varied from Time 1 to Time 2 (i.e., both pre-training), she demonstrated the same four LAFF skills during the two role plays, and an additional skill during the Time 1 role play (i.e., finding a first step). This pattern highlights the previously discussed hypothesis, that the MPOC subscale may measure behaviors that go beyond the LAFF strategy skills. At post-training, Participant 12 demonstrated 10 of the LAFF skills during the role play, but received a lower average MPOC score from the parent raters compared to Time 2 when she demonstrated only 4 of the LAFF skills. Participant 12 was one of the pre-service SLPs who did not complete the advanced practice training activity. Accordingly, it is possible that a lack of practice led to a lack of fluency, which was perceived as less family-centered by the parent raters.

**Individual MPOC subscale items**

The pre-service SLPs consistently improved on some of the MPOC subscale items; these items may be most closely linked to the LAFF strategy skills. For example, there were three MPOC subscale items on which participants consistently improved in both Group 1 and Group 2: (a) providing a caring atmosphere, (b) providing enough time to talk, and (c) treating the parent as an equal.

The L-step of LAFF most likely contributed to the SLPs’ improvements in providing a caring atmosphere. The students were taught that “The goal of this step is to communicate that the SLP is doing his or her best to understand the parent’s thoughts and feelings (empathy) and that how the parent is feeling is important to the SLP (respect).” Specifically, the statement of empathy was intended to show the SLPs’ understanding and caring nature, and the majority (73%) of the participants demonstrated this skill post-training.
The L-step and A-step both could have contributed to the pre-service SLPs’ improvements in providing enough time to talk. In the L-step, the pre-service SLPs were taught to “give the parent the floor” and show that they were there to listen and fully understand the concern. In the A-step, the students were taught the importance of allowing silence during an interaction. They were taught to take notes, which potentially allowed periods of silence while they were writing. Although the SLPs’ use of silence was not measured, they were taught that the positive benefits included “allowing the parent to process information, maintaining a family-centered focus, and providing an open invitation to the parent to talk.” If the SLPs permitted silence, they were most likely observed as not rushing through the interaction.

Lastly, specific component skills of the L-step and the final F-step could have impacted the way SLPs were perceived as treating the parents as equals. In the L-step, the SLPs were taught the importance of body language and how the room is set-up. For example, they were instructed to not have a large desk between them and the parents, avoid seating the parents in small children’s chairs, and if possible, sit beside or diagonally from the parents. All of these small changes could allow comfort on the part of the parents. In addition to these benefits, these behaviors were intended to demonstrate that parents were equals in the interaction. In the final F-step, the SLPs were taught to find a first step, together with the parent. It was emphasized that the next step should always be identified with the parent, which shows that they are an important and equal team member in the process.

In addition to items on which gains were consistently observed post-training, there was one MPOC item which showed minimal change from pre-to post-training. The parent raters answered, “To what extent did the SLP in the video remember personal details about the child or family when speaking to the parent?” Considering the role play nature of the interactions, it may not be surprising that this item showed minimal change. The pre-service SLPs only had limited information regarding the child and family which was provided 10 minutes before the role play.
In a real-life scenario, an SLP would have more information and experience with the child and would likely have more potential to demonstrate this relational skill. The lack of gains on this negatively impacted the gains in the overall MPOC-56 subscale scores.

Clinical implications

The findings from this study suggest important clinical implications for training pre-service SLPs to become family-centered clinicians. First, many of the pre-service SLPs were lacking in relational behaviors during the role plays prior to training. The parents perceived many of the SLPs as only providing family-centered behaviors “to a small extent” or “to a moderate extent” at baseline. These findings highlight the importance of graduate programs to include family-centered content early in the curricula, as well as the development of effective interactional skills. As one participant stated, “A counseling course that incorporates LAFF could be an excellent addition to our school’s curriculum.”

Many of the pre-service SLPs in the current study were scheduled to start clinical practicum experiences with real parents of children with CCN in the semester following the training. Without the online training, the pre-service SLPs could have entered into parent interactions with little support for how to effectively interact and communicate with parents. For novice clinicians, strategies such as LAFF, can provide support, scaffolding, and improved confidence, as expressed by many of the students post-training.

Second, the findings indicate that pre-service SLPs can be taught how to demonstrate the skills targeted in the LAFF strategy during interactions with simulated parents after a relatively short-period of online instruction. With an average of just 61 minutes of online training, all of the participants improved their implementation of the LAFF strategy.
Despite the advantages of e-learning, to date there has been limited research examining the effectiveness of asynchronous online learning for pre-service SLPs. Two studies have examined pre-service SLPs’ perceptions of online learning modules in Communication Science and Disorders, but reported no learning outcomes (Ginsberg, 2008; Tattersall, 2015). Another study reported positive learning outcomes for students learning anatomy and physiology, but the instruction was presented in a hybrid design (i.e., online and in-person instruction; Lemoncello, 2015). There only appears to be one study to date which examined an asynchronous online learning module on pre-service SLPs phonetic transcription knowledge and skills (Krimm, Schuele, & Brame, 2017). After 1-3 hours of engagement with the online module, all students demonstrated improvements in phonetic transcription knowledge and skill. The findings of the present study add to this evidence as they highlight the effectiveness and efficiency of an online environment for pre-service training. They additionally show the potential for teaching clinical skills in a non-traditional format, especially if no one on faculty has expertise in a specific but essential area such as family-centered services.

**Future training improvements**

In order to improve the training for future pre-service SLPs, revisions may be necessary to the LAFF strategy skills and the online training. In the present study, the LAFF strategy consisted of 12 individual skills. It may be necessary to reduce the number of component skills by either omitting or collapsing skills into one. When instructing adult learners, educators must consider the amount of content presented. One of the limitations of effective adult learning is poor attention, which commonly arises from an educator’s failure to limit the number of tasks or informational units taught to the learner (Fehring & Rodrigues, 2016). Research shows the value of teaching content in small “chunk” sizes, with the most recent evidence suggesting 2 to 4
“chunks” as a realistic number (Cowan, 2001; Gobet & Clarkson, 2004). Introducing too many skills at once can overwhelm adult learners’ working memory, reduce their attention and understanding of the skills, and impair their ability to form long-term memory of the skills (Fehring & Rodrigues, 2016). Reducing the number of LAFF skills and combining them into “chunks” may be a beneficial revision in order to improve learning of the LAFF strategy. As discussed earlier, it may be appropriate to collapse “check for accuracy” into the “provide a summary” skill, since these two actions often coincide with one another. Another skill to omit is “greet the parent” since all pre-service SLPs did this naturally during pre-training role plays. These changes will reduce the length of the LAFF checklist and allow the pre-service SLPs to focus on a smaller number of relevant skills.

Another improvement may be to emphasize the skill of asking open-ended questions and provide more practice developing relevant questions. This skill was demonstrated by only half of the pre-service SLPs following training. Asking open-ended questions may also potentially contribute to family-centered services more than other skills, as evidenced by the three pre-service SLPs who asked questions and were also perceived as demonstrating family-centered behaviors before training.

Another improvement may also be necessary to the “verbal practice” stage of instruction. The purpose of this stage is to ensure that learns have a solid understanding of each skill of a strategy. In this study, the pre-service SLPs were prompted to recall the four steps of the LAFF strategy, rather than the 12 component skills (e.g., “What does “L” stand for?”). There was never an actual check of the pre-service SLPs’ knowledge of the 12 skills, which may potentially explain why some of the LAFF skills were not demonstrated during the role play interactions. One way to improve this stage of instruction is to include checks on the component skills of each LAFF step, after each step is introduced (e.g., “What is the first component skill of the L-step?”).
By making this revision to the online training, the “verbal practice” activity will serve its purpose in the strategy instruction framework, as intended.

The addition of other family-centered skills may also be a necessary revision to the family-centered training. The MPOC-56 subscale items can offer guidance in identifying family-centered relational skills that will be highly valued by parents. For example, following the training, the parent raters in this study perceived that the pre-service SLPs remembered personal details about the child or family “to a small extent” or “to a moderate extent”. The pre-service SLPs across both groups received the lowest mean ratings on this specific item. It may be necessary to operationalize this relational skill in order to instruct the pre-service SLPs in how to demonstrate the skill. One possibility is instructing the pre-service SLPs to say something positive and personal about the child during the interaction, such as, “Caroline has shown so much improvement since the beginning of the school year. Last week, she used her device to tell me about her new dog!” A positive and personal statement can demonstrate the pre-service SLPs’ use of personal details, as well as their strength-focused outlook on the child.

In addition to the instructional content presented during the training, improvements may also be necessary to the training format. Pre-service SLPs in the present study were able to maneuver throughout the training with no restrictions. A potential improvement is to restrict the pre-service SLPs from moving forward throughout the training without completing each section. Based on how long the pre-service SLPs spent accessing the training, it was clear that some skipped or fast forwarded through the description and demonstration videos, which are both necessary stages in the strategy instruction sequence.

Despite the necessity of the description and demonstration stages, improvements may be warranted to reduce the length of time devoted to the specific strategy instruction stages. Even though all of pre-service SLPs increased their implementation of the LAFF strategy skills, the majority reported difficulties using the strategy in a natural manner. This may indicate that the
training did an adequate job teaching the strategy to the pre-service SLPs, but did not provide enough practice opportunities to increase fluency with strategy implementation. It is well supported that deliberate and ample opportunities for practice are necessary in order to achieve high levels of performance with a specific set of skills (Ericsson, Krampe, & Tesch-Römer, 1993; Ericsson, 2004; 2008). Potential improvements may include shortening the description and demonstration videos to include only the most important information, improving the current practice activities, and providing additional opportunities for practice.

In the present study, the pre-service SLPs practiced “playing the role” of an SLP, indicating what they would say or do as they viewed a video interaction of a parent and SLP. As the video paused, the pre-service SLPs were prompted, “What would you say next?” and were given a text box to insert their responses. One way to improve this task is to instruct the pre-service SLPs to immediately respond to the prompt by “acting out” their response, and then insert their response into the text box. This revision addresses the difference between knowing what to do (i.e., declarative knowledge), and how to do it (i.e., procedural knowledge) (Nokes, Schunn, & Chi, 2010). By instructing the pre-service SLPs to immediately respond aloud, they will receive increased practice with the component skills, thus improving their procedural knowledge of the LAFF strategy as well as their fluency.

In order to provide increased practice opportunities in future trainings, the pre-service SLPs can be instructed to join fellow classmates in groups of three and practice using the LAFF strategy. The pre-service SLPs can take turns playing the role of the parent and the SLP. The third pre-service SLP can act as an observer and complete the LAFF checklist while the interaction occurs. A potential solution to ensure completion of the practice activities is to require the pre-service SLPs to upload the LAFF checklist to the online training website. By completing these role play interactions, the pre-service SLPs will be provided with feedback and increased
opportunities for repetition and refinements, which research shows are necessary conditions of practice to improve performance (Ericsson et al., 1993).

**Limitations and future research**

Despite the contribution of this study to enhancing our understanding of pre-service training of SLPs in family-centered services, there are limitations to consider and important directions for future research. First, there were only 15 pre-service SLPs from one graduate program who participated in the online training and simulated role plays. With a sample size this small, it is difficult to extend the findings to the wider population. It is necessary to investigate the effects of the training with larger groups of pre-service SLPs from a range of programs and geographic locations. In addition to pre-service SLPs, the effectiveness of online training in family-centered skill sets should be investigated with SLPs who are already working, as in-service SLPs have reported challenges to providing effective family-centered services (Mandak & Light, 2018).

An additional limitation is the sole focus on the LAFF strategy and implementation of LAFF during AAC services. Although LAFF encompassed many of the evidence-based relational skills found in the literature, there may be other relational skills that play an important role in family-centered AAC services. As evidenced by the patterns of MPOC-56 data in the present study, the parent raters perceived some pre-service SLPs as family-centered, even when only a limited number of LAFF skills were demonstrated. Future research is required to determine which relational skills are critical to the delivery of family-centered services. It is also necessary for pre-service SLPs to consider providing family-centered services to families and children who do not require AAC. Although all scenarios included in the training were based on real concerns of parents of children who use AAC, it is vital that pre-service SLPs are prepared to handle unique
concerns from parents of children with a range of speech, language, and hearing impairments. Future investigations are necessary to identify which relational skills are most effective during interactions with parents of children who use AAC, as well as parents of children with other communication impairments.

Other limitations are related to the use of simulated role plays. One limitation is the potential confound of the familiarity of some of the pre-service SLPs with the simulated parents. As discussed earlier, doctoral students studying speech-language pathology played the role of parents, and were chosen based on their availability during the study timeframe, and their prior work and educational experiences with children with disabilities and parent interactions. Although these attributes were beneficial to their portrayal of parents, it is likely that some of the pre-service SLPs knew the doctoral students before their participation in this study. This familiarity could have impacted the way the pre-service SLPs demonstrated the LAFF strategy during the role play interactions.

Another limitation related to the sole use of simulated role plays is a lack of assessing generalization to actual parents of children with CCN. By using simulated role plays, the pre-service SLPs’ use of the LAFF strategy was measured during one, brief moment in time. The short interaction may not have provided an accurate demonstration of the pre-service SLPs’ relational skills. When working with actual families, relationships build over time and the use of relational skills may improve as the relationship grows. Future research should evaluate how pre-service SLPs’ use of relational skills with parents changes over extended periods of time, and whether parents’ perceptions change as a result of relational skill growth.

It is also possible that the pre-service SLPs would have demonstrated different behaviors when interacting with real parents. The procedures of this study were designed to provide the pre-service SLPs with varying contexts, exercises, and scenarios in order to prepare for generalization; however, a generalization interaction to assess use with actual parents of children
with CCN was not included. Despite the majority of the students reporting that the simulated parents were effective in portraying real parents, it is necessary to assess the implementation of the LAFF strategy with real parents in future LAFF investigations.

In addition to the lack of generalization measures, long term maintenance of the LAFF strategy was not assessed in this study. Without these data, it is unknown if the students were able to maintain their knowledge of the strategy and effectively implement the skills at a later date. In order to determine the long-term effects of the online training, future research must collect maintenance data.

Another limitation regarding the simulated role plays is the lack of cultural diversity represented in the parent scenarios. It is imperative that pre-service SLPs consider culture when working with families (American Speech-Language-Hearing Association, n.d.b; 2017) and that training programs prepare pre-service SLPs to effectively serve culturally and linguistically diverse populations (American Speech-Language-Hearing Association, n.d.b; Hammond, Mitchell, & Johnson, 2009; Stockman, Boult, & Robinson, 2008). Despite this need, research suggests that pre-service SLPs may not receive adequate training in how to be culturally competent (Halvorson-Bourgeois, Zipse, & Haynes, 2013; Horton-Ikard et al., 2010; Stockman et al., 2008), nor how to effectively counsel individuals and families from diverse backgrounds (Moore Revel, 2015). In order to improve the preparation of pre-service SLPs, future LAFF investigations should include an increased number of scenarios with simulated parents from diverse backgrounds, as well as concerns that may stem from cultural diversity.

The focus on improving only the relational skills of the pre-service SLPs is also a limitation. As discussed earlier, there are two subsets of skills that contribute to the implementation of family-centered services—relational and participatory practices. Participatory practices play an important role in the confidence and competence of parents, as well as their judgements of professional supports (Dunst et al., 2007). They include behaviors such as actively
involving parents in decision making and building upon existing strengths in order to be actively involved in intervention. Considering that both relational and participatory skills are necessary to provide family-centered services, future research should investigate whether participatory skills can be taught effectively and efficiently in an online environment as well.

Finally, the present study only investigated one approach to teaching relational skills, through a specific instructional sequence in the online environment. Although it appears that the training was effective and efficient, there may be other relational skills, instructional techniques, and implementation approaches that are more effective for teaching pre-service SLPs how to deliver effective family-centered services. Future research is required to compare the relative effectiveness of various approaches in improving the relational skill of pre-service SLPs.

**Conclusion**

Although family-centered AAC services are recognized as best practice, evidence suggests that families do not always receive these services from their child’s SLP. One avenue for improving the family-centered skill set of SLPs is through improvements to their pre-service training. Findings from this study suggest that an online training, that targets an evidence-based strategy and incorporates principles of effective e-learning and research on effective instruction, was effective in teaching pre-service SLPs how to demonstrate a relational skills strategy during interactions with simulated parents. Following approximately 60 minutes of training, all pre-service SLPs improved in their implementation of the strategy and reported that they would recommend the use of the strategy to others. In addition to strategy use, many of the participants were perceived as more family-centered by parents of children with disabilities, post-training. Specifically, they were perceived as providing a caring atmosphere, providing enough time to talk, and treating the parent as an equal to a greater extent post-training.
Although relational skills are just one set of skills that contribute to a family-centered approach, they are vital when providing services to families with children with CCN. Parents have reported a lack understanding, sensitivity, and other relational behaviors from AAC professionals. It is crucial that SLPs demonstrate relational skills when interacting with parents, as research suggests that this will lead to greater family satisfaction and family well-being (Dunst et al., 2007). If families are satisfied, there is a higher likelihood of developing a successful and collaborative partnership among families and SLPs, leading to improved AAC outcomes.

In order to improve pre-service training and ensure increased delivery of family-centered services, future research is necessary. Future studies should investigate the effects of online family-centered trainings on larger groups of students, the effects of training on students at varying educational levels (i.e., undergraduate, pre-service, in-service), and whether other family-centered skill sets (i.e., participatory) can be effectively taught through an online environment.
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Appendix A

List of Family-Centered Instruments reviewed from Dunst et al. (2006) and Porter et al. (2012)

*Instrument which was used for the identification of important relational practices in the current study.

Reviewed in Dunst, Trivette, & Hamby, 2006;
*Helpgiving Practices Scale
FIPP Guiding Principles Scale
*Enabling Practices Scale
*Family-Centered Practices Scale

Reviewed in Porter et al., 2012;
Assessment of Practices in Early Elementary Classrooms
Assessment Profile for Early Childhood Programs
Business Administration Scale for Family Child Care (BAS)
Child Care Assessment Tool for Relatives (CCAT R) Interview
Early Childhood Environmental Rating Scale-Revised (ECERS-R)
Early Childhood Longitudinal Study- Birth Cohort Center Director Questionnaire (ECLS-B)
Emlen Scales
*Family-Centered Behavior Scale
Family-Centered Care Self-Assessment Tool
Family Involvement Questionnaire
Family Nurse Caring Belief Scale (FNCBS)
Family Outcomes Survey- Revised
Family Participation Measure
*Family Professional Partnership Tool
Family Provider Interaction Analysis (FPIA)
*Helpgiving Practices Scale
Helping Relationship Inventory for Social Work Practice
Home Visit Rating Scale (HOVRS)
A Hospital Self-Assessment Inventory, Patient- and Family-Centered Care
Incredible Years Evaluation: INVOLVE Parent Questionnaire
Incredible Years Evaluation: INVOLVE Teacher Questionnaire
Infant/Toddler Environmental Rating Scale- Revised (ITERS-R)
*Measure of Process of Care
Medical Home Index: Pediatric
National Study of Early Care and Education Design Questionnaire for Center-Based Care Settings (NSECE)
National Study of Early Care and Education Design Questionnaire for Home-Based Care Settings (NSECE)
National Study of Early Care and Education, Design Questionnaire for Parents (NSECE)
NICHD Study of Early Child Care (SECC) - Parent and Teacher Involvement (Teacher Report)
NICHD Study of Early Child Care (SECC) - Parent Involvement (Child Care Provider Report)
Parent Caregiver Relationship Scale (PCRS)
Parent Leadership Development Self-Assessment
Parent and Teacher Involvement Measure
Perceptions of Communication Questionnaire
Preschool Program Quality Assessment-Agency Items
Program Administration Scale (PAS)
Quality for ME: Quality of Child Care Services
Strengthening Families Through Early Care and Education Program Self-Assessments
Teacher-Parent Involvement Questionnaire
Teaching Pyramid Observation Tool
Three-City Study Child Care Interview Protocol
Trust Scale
Work-Child Care Fit
Wraparound Fidelity Index (WFI-4)
Appendix B

IRB Approval Letter

APPROVAL OF SUBMISSION

Date: November 2, 2017
From: Jodi Mathieu, IRB Analyst
To: Kelsey Mandak

Type of Submission: Initial Study
Title of Study: The Effects of an Online Training on Pre-service SLPs’ Use of Relational Skills and Family-Centered Behaviors
Principal Investigator: Kelsey Mandak
Study ID: STUDY00007996
Submission ID: STUDY00007996
Funding: The Pennsylvania State University

IND, IDE, or HDE: Not Applicable

Documents Approved:
• .docx (0.03), Category: Data Collection Instrument
• Consent (Parents) (0.02), Category: Consent Form
• Consent Form (Students) (0.04), Category: Consent Form
• Dissertation Fund Request.docx (0.01), Category: Sponsor Attachment
• Dissertation IRB Protocol (October 31, 2017), Category: IRB Protocol
• Eligibility Questions (parents) (0.02), Category: Recruitment Materials
• Eligibility Questions (Students) (0.02), Category: Recruitment Materials
• Facebook Advertisement (parents) (0.01), Category: Recruitment Materials
• LAFF scoring rubric (0.02), Category: Data Collection Instrument
• Link to Online Training Content (0.02), Category: Other
• Recruitment Letter (Parents) (0.02), Category: Recruitment Materials
• Recruitment Letter (Students) (0.01), Category: Recruitment Materials
• Scenario Information (0.01), Category: Other
• Scenario Parent Review Questions (0.01), Category: Data Collection Instrument
• Script for CSD Classes (Students) (0.01), Category: Recruitment Materials
On 11/2/2017, the IRB approved the above-referenced Initial Study. This approval is effective through 11/1/2018 inclusive. You must submit a continuing review form with all required explanations for this study at least 45 days before the study’s approval end date. You can submit a continuing review by navigating to the active study and clicking ‘Create Modification / CR’.

If continuing review approval is not granted before 11/1/2018, approval of this study expires on that date.

To document consent, use the consent documents that were approved and stamped by the IRB. Go to the Documents tab to download them.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within CATS IRB (http://irb.psu.edu). These requirements include, but are not limited to:

- Documenting consent
- Requesting modification(s)
- Requesting continuing review
- Closing a study
- Reporting new information about a study
- Registering an applicable clinical trial
- Maintaining research records

This correspondence should be maintained with your records.
Appendix C

Consent to Participate (Pre-service SLPs/Students)

CONSENT FOR RESEARCH
The Pennsylvania State University

Title of Project: The Effects of an Online Training on Pre-service SLPs’ Use of Relational Skills and Family-Centered Behaviors

Principal Investigator: Kelsey Mandak
Address: 303 Ford Building, University Park, PA, 16802
Telephone Number: (412) 613-8995
Advisor: Dr. Janice Light
Advisor Telephone Number: (814) 863-2010
Subject’s Printed Name: ________________________

We are asking you to be in a research study. This form gives you information about the research. Whether or not you take part is up to you. You can choose not to take part. You can agree to take part and later change your mind. Your decision will not be held against you. Please ask questions about anything that is unclear to you and take your time to make your choice.

1. Why is this research study being done?
   The research is being done to determine if an online training can teach pre-service SLPs a strategy to improve interactions with parents of children with complex communication needs.
   We are asking you to be in this research because we are hoping to learn how to effectively and efficiently teach pre-service SLPs the necessary skills to effectively interact with families.

2. What will happen in this research study?
   To be part of this study, you must
   □ Be a 3rd or 4th year undergraduate or Master’s student in Communication Sciences and Disorders (CSD) at Penn State, University Park campus
   
   In this study, you will complete an online training that will take approximately 60-90 minutes. In the training, you will learn a strategy to use when interacting with parents of children with complex communication needs. You will view learn the strategy through video descriptions and video demonstrations. You will also practice implementing the strategy in an online environment. You will be able to start, stop, and return to the training at your convenience.

   In order to measure the effectiveness of the training, you will participate in four role plays. Each role play will be video-recorded. The role plays will take 5 to 10 minutes and will be designed to mimic a typical interaction with a parent of a child with complex communication needs. You will receive a short summary of a scenario 15 minutes before each role play (i.e., similar to an intake form that lists some details about a child). In three of the role plays, the role of parents will be played by non-CSD students at Penn State University. In the last role play, a real parent will participate in the interaction.
After the last role play, you will complete a set of “social validity” questions to measure your perceived usefulness of the taught strategy and the practicality of offering the training online.

It is important to know that you will not have to do anything that you do not wish to. You can choose to stop at any time, and that will be fine.

3. What are the risks and possible discomforts from being in this research study?
   This study involves minimal risk. There are no physical, psychological, social, legal, or economic risks.

There is a low risk of loss of confidentiality if your information or your identity is obtained by someone other than the investigators, but precautions will be taken to prevent this from happening. The confidentiality of your electronic data created by you or by the researchers will be maintained to the degree permitted by the technology used. Absolute confidentiality cannot be guaranteed.

4. What are the possible benefits from being in this research study?
   4a. What are the possible benefits to you?
      You will have the chance to learn a new strategy to effectively interact with parents.

   4b. What are the possible benefits to others?
      You will help us to learn how to better train pre-service SLPs to effectively interact with parents and provide family-centered services.

5. What other options are available instead of being in this research study?
   You may decide not to participate in this research.

6. How long will you take part in this research study?
   If you agree to take part in this study, the online training will take approximately 60-90 minutes to complete. Before each role play, you will take 15 minutes to review a specific clinical scenario. Each role play will take 5-10 minutes. Your total time commitment will be roughly 2.5-3 hours. You will be asked to return to the research site 4 times.

7. How will your privacy and confidentiality be protected if you decide to take part in this research study?
   Efforts will be made to limit the use and sharing of your personal research information to people who have a need to review this information.

   - A list that matches your name with a code number will be kept separate from your research data on a cloud storage system – Box at Penn State.
   - Your research records will be labeled with your code number and will be kept on Box at Penn State.

   In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared depending upon permissions granted below in the optional section at the end.

   We will do our best to keep your participation in this research study confidential to the extent permitted by law. However, it is possible that other people may find out about your participation...
in this research study. For example, the following people/groups may check and copy records about this research.
- The Office for Human Research Protections in the U. S. Department of Health and Human Services
- The Institutional Review Board (a committee that reviews and approves research studies) and
- The Office for Research Protections.

Some of these records could contain information that personally identifies you. Reasonable efforts will be made to keep the personal information in your research record private. However, absolute confidentiality cannot be guaranteed.

8. Will you be paid or receive credit to take part in this research study?
There is no monetary compensation for participation in this study.

Your participation in this study may either be voluntary or you will receive extra credit. Master’s student will not be compensated. Undergraduate students in CSD 451 will receive extra credit. The extra credit will be equivalent to 2% of the total course points. The extra credit will be awarded only in addition to the base amount of points to be earned in the course.

An alternate activity will be offered that is equal in time and effort. The alternate activity will be an observation of student-SLPs during meetings with parents at the Speech-and-Language Clinic at Penn State, and a 1-page reflection paper on the interaction. If a student completes the alternative activity, he or she will receive the extra credit.

9. What are your rights if you take part in this research study?
Taking part in this research study is voluntary.
- You do not have to be in this research.
- If you choose to be in this research, you have the right to stop at any time.
- If you decide not to be in this research or if you decide to stop at a later date, there will be no penalty or loss of benefits to which you are entitled.

10. If you have questions or concerns about this research study, whom should you call?
Please call the head of the research study (principal investigator), Kelsey Mandak at (412) 613-8995 if you:
- Have questions, complaints or concerns about the research.
- Believe you may have been harmed by being in the research study.

You may also contact the Office for Research Protections at (814) 865-1775, ORProtections@psu.edu, if you:
- Have questions regarding your rights as a person in a research study.
- Have concerns or general questions about the research.
- You may also call this number if you cannot reach the research team or wish to offer input or to talk to someone else about any concerns related to the research.
INFORMED CONSENT TO TAKE PART IN RESEARCH

Signature of Person Obtaining Informed Consent

Your signature below means that you have explained the research to the subject or subject representative and have answered any questions he/she has about the research.

Signature of person who explained this research  Date  Printed Name
(Only approved investigators for this research may explain the research and obtain informed consent.)

Signature of Person Giving Informed Consent

Before making the decision about being in this research you should have:

☐ Discussed this research study with an investigator,
☐ Read the information in this form, and
☐ Had the opportunity to ask any questions you may have.

Your signature below means that you have received this information, have asked the questions you currently have about the research and those questions have been answered. You will receive a copy of the signed and dated form to keep for future reference.

Signature of Subject

By signing this consent form, you indicate that you voluntarily choose to be in this research and agree to allow your information to be used and shared as described above.

Signature of Subject  Date  Printed Name
Optional Storage of Video Recordings for Future Research

In the main part of this study, we are collecting video recordings that contain identifiable information from you. If you agree, the researchers would like to maintain these video recordings for future research or to be used in publications or at presentations.

☐ Any future studies may be helpful in understanding how to train pre-service SLPs to work effectively with families of children with complex communication needs.

☐ It is unlikely that any future studies will have a direct benefit to you.

Your video recordings will be labeled with an alpha-numeric code.

☐ These recordings will be stored on a cloud storage system – Box at Penn State. Only members of the research team will have access to this information.

☐ The length of time they will be used is unknown.

☐ You will be free to change your mind at any time.

☐ You should contact principal investigator if you wish to withdraw your permission for your recordings to be used for future research or publicly. The recordings will then be destroyed and not used for future research studies or shown publicly.

You should initial below to indicate what you want regarding the storage your video recordings for future research studies.

a. Your identifiable video recordings may be stored and used for future research studies to learn about the training of pre-service SLPs to work effectively with families.

_____ Yes _____ No

b. Your identifiable video recordings may be shared publicly at presentations or in publications.

_____ Yes _____ No

Signature of Person Obtaining Informed Consent

Your signature below means that you have explained the optional part(s) to the research to the subject or subject representative and have answered any questions he/she has about the research.

_________________________________________ Date __________ Printed Name

Signature of person who explained this research

Signature of Person Giving Informed Consent

Signature of Subject

By signing below, you indicate that you have read the information written above and have indicated your choices for the optional part(s) of the research study.

_________________________________________ Date __________ Printed Name

Signature of Subject

Page 5 of 5 (v.02/22/2016)
Appendix D

Consent to Participate (Parents)

CONSENT FOR RESEARCH
The Pennsylvania State University

Title of Project: The Effects of an Online Training on Pre-service SLPs’ Use of Relational Skills and Family-Centered Behaviors

Principal Investigator: Kelsey Mandak

Address: 303 Ford Building, University Park, PA, 16802

Telephone Number: (412) 613-8995

Advisor: Dr. Janice Light

Advisor Telephone Number: (814) 863-2010

We are asking you to be in a research study. This form gives you information about the research.

Whether or not you take part is up to you. You can choose not to take part. You can agree to take part and later change your mind. Your decision will not be held against you. Please ask questions about anything that is unclear to you and take your time to make your choice.

1. Why is this research study being done?

The research is being done to determine if an online training can teach pre-service SLPs a strategy to improve interactions with parents of children with complex communication needs.

We are asking you to be in this research because we are hoping to learn how to effectively and efficiently teach pre-service SLPs the necessary skills to effectively interact with families.

2. What will happen in this research study?

To be part of this study, you must

☐ Be a parent of a child with complex communication needs (i.e., your child is unable to use natural speech to meet his or her daily communication needs)

<table>
<thead>
<tr>
<th>What will you be asked to do?</th>
<th>Time commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Read and review 6 clinical scenarios designed to portray a real interaction between an SLP and a parent of a child who uses AAC.</td>
<td>2-3 hours</td>
</tr>
<tr>
<td>☐ View video recordings of SLP students interacting with “simulated parents” (i.e., other students portraying parents)</td>
<td>18 hours</td>
</tr>
<tr>
<td>☐ Answer four short-answer questions in a word document related to the relevance and importance of each scenario.</td>
<td></td>
</tr>
<tr>
<td>☐ You will be asked to report on some of the SLP’s behaviors on a 7-point scale (1=not at all, 7=to a very great extent)</td>
<td></td>
</tr>
</tbody>
</table>
3. What are the risks and possible discomforts from being in this research study?
This study involves minimal risk. There are no physical, psychological, social, legal, or economic risks. You will not have to do anything that you do not wish to.

There is a risk of loss of confidentiality if your information or your identity is obtained by someone other than the investigators, but precautions will be taken to prevent this from happening. The confidentiality of your electronic data created by you or by the researchers will be maintained to the degree permitted by the technology used. Absolute confidentiality cannot be guaranteed.

4. What are the possible benefits from being in this research study?
4a. What are the possible benefits to you?
You will contribute to research that can result in more adequately trained SLPs in the future and better services for families and children with complex communication needs.

4b. What are the possible benefits to others?
You will help us to learn how to better train pre-service SLPs to effectively interact with parents and provide family-centered services.

5. What other options are available instead of being in this research study?
You may decide not to participate in this research.

6. How long will you take part in this research study?
If you agree to take part in this study, your total time commitment will be approximately 25 hours, across a 2-month period. If you choose to participate in in-person role plays, you will be asked to return to the research site 1 time.

7. How will your privacy and confidentiality be protected if you decide to take part in this research study?
Efforts will be made to limit the use and sharing of your personal research information to people who have a need to review this information.

- A list that matches your name with a code number will be kept separate from your research data on a cloud storage system – Box at Penn State.*

- Your research records will be labeled with your code number and will be kept on Box at Penn State.

In the event of any publication or presentation resulting from the research, no personally identifiable information will be shared.

We will do our best to keep your participation in this research study confidential to the extent permitted by law. However, it is possible that other people may find out about your participation in this research study. For example, the following people/groups may check and copy records about this research.

- The Office for Human Research Protections in the U. S. Department of Health and Human Services
8. Will you be paid or receive credit to take part in this research study?
Participants will receive monetary compensation at a rate of $12.00/hour for a total of approximately $300.

9. What are your rights if you take part in this research study?
Taking part in this research study is voluntary.
- You do not have to be in this research.
- If you choose to be in this research, you have the right to stop at any time.
- If you decide not to be in this research or if you decide to stop at a later date, there will be no penalty or loss of benefits to which you are entitled.

10. If you have questions or concerns about this research study, whom should you call?
Please call the head of the research study (principal investigator), Kelsey Mandak at (412) 613-8995 if you:
- Have questions, complaints or concerns about the research.
- Believe you may have been harmed by being in the research study.

You may also contact the Office for Research Protections at (814) 865-1775, OHRprotections@psu.edu, if you:
- Have questions regarding your rights as a person in a research study.
- Have concerns or general questions about the research.
- You may also call this number if you cannot reach the research team or wish to offer input or to talk to someone else about any concerns related to the research.
Signature of Person Obtaining Informed Consent

Your signature below means that you have explained the research to the subject or subject representative and have answered any questions he/she has about the research.

_________________________  ____________  __________________
Signature of person who explained this research   Date   Printed Name
(Only approved investigators for this research may explain the research and obtain informed consent.)

Signature of Person Giving Informed Consent

Before making the decision about being in this research you should have:
    □ Discussed this research study with an investigator,
    □ Read the information in this form, and
    □ Had the opportunity to ask any questions you may have.

Your signature below means that you have received this information, have asked the questions you currently have about the research and those questions have been answered. You will receive a copy of the signed and dated form to keep for future reference.

Signature of Subject

By signing this consent form, you indicate that you voluntarily choose to be in this research and agree to allow your information to be used and shared as described above.

_________________________  ____________  __________________
Signature of Subject   Date   Printed Name
Optional Storage of Video Recordings for Future Research

In the main part of this study, we are collecting video recordings that contain identifiable information from you. If you agree, the researchers would like to maintain these video recordings for future research or to be used in publications or at presentations.

- Any future studies may be helpful in understanding how to train pre-service SLPs to work effectively with families of children with complex communication needs.
- It is unlikely that any future studies will have a direct benefit to you.

Your video recordings will be labeled with an alpha-numeric code.

- These recordings will be stored on a cloud storage system – Box at Penn State. Only members of the research team will have access to this information.
- The length of time they will be used is unknown.
- You will be free to change your mind at any time.
- You should contact principal investigator if you wish to withdraw your permission for your recordings to be used for future research or publicly. The recordings will then be destroyed and not used for future research studies or shown publicly.

You should initial below to indicate what you want regarding the storage your video recordings for future research studies.

a. Your identifiable video recordings may be stored and used for future research studies to learn about the training of pre-service SLPs to work effectively with families.
   _______ Yes _______ No

b. Your identifiable video recordings may be shared publicly at presentations or in publications.
   _______ Yes _______ No

Signature of Person Obtaining Informed Consent

Your signature below means that you have explained the optional part(s) to the research to the subject or subject representative and have answered any questions he/she has about the research.

Signature of person who explained this research __________ Date __________ Printed Name __________

Signature of Person Giving Informed Consent

Signature of Subject

By signing below, you indicate that you have read the information written above and have indicated your choices for the optional part(s) of the research study.

__________________________ Date __________ Printed Name __________
## Appendix E

### Demographic Form

Confidential Demographic Form

<table>
<thead>
<tr>
<th>Student Name:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender:</td>
<td></td>
</tr>
<tr>
<td>Age:</td>
<td></td>
</tr>
<tr>
<td>Race:</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Black or African American</td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaska Native</td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td></td>
</tr>
<tr>
<td>Hawaiian or Pacific Islander</td>
<td></td>
</tr>
<tr>
<td>More than one race</td>
<td></td>
</tr>
<tr>
<td>Education and Training:</td>
<td></td>
</tr>
<tr>
<td>What is the highest level of education that you have completed?</td>
<td></td>
</tr>
<tr>
<td>(e.g., Bachelor’s, Master’s, etc.)</td>
<td></td>
</tr>
<tr>
<td>Describe your previous degrees:</td>
<td></td>
</tr>
<tr>
<td>(e.g., Bachelor of science in Communication Sciences and Disorders)</td>
<td></td>
</tr>
<tr>
<td>Have you ever been trained in family-centered services or how to interact effectively with families?</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Have you ever been trained in any interaction or counseling strategies?</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Do you have prior coursework in AAC?</td>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
Demographic Pg. 2

**Experience:**

<table>
<thead>
<tr>
<th>Do you have prior experience working with parents or family members professionally?</th>
<th>Yes</th>
<th>If yes, please explain (include the length of experience &amp; a description of the experience):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you have any personal experiences with families of children with disabilities? (e.g., do you have a child, sibling, parent, cousin with a disability?)</th>
<th>Yes</th>
<th>If yes, please explain (include the length of experience &amp; a description of the experience):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you have prior experience with AAC? (i.e., either professionally or personally)</th>
<th>Yes</th>
<th>If yes, please explain (include the length of experience &amp; a description of the experience):</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix F

### Simple LAFF checklist

<table>
<thead>
<tr>
<th>Step</th>
<th>SLP behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listen <strong>and</strong> show interest</td>
<td>☐ Greet the parent, and offer some small chit chat&lt;br&gt;☐ Ask about the reason for meeting&lt;br&gt;Empathize&lt;br&gt;☐ Make a statement of empathy and understanding&lt;br&gt;Communicate respect&lt;br&gt;☐ Thank the parent for coming to meet you&lt;br&gt;☐ Show appropriate body language</td>
</tr>
<tr>
<td>Ask questions</td>
<td>☐ Ask the parent for permission to take notes&lt;br&gt;☐ Ask relevant open-ended questions</td>
</tr>
<tr>
<td>Focus on the issues</td>
<td>☐ Summarize the parent’s concerns&lt;br&gt;☐ Check for accuracy&lt;br&gt;☐ Ask if the parent would like to add anything</td>
</tr>
<tr>
<td>Find a <strong>FIRST</strong> step</td>
<td>☐ Consider the information provided and identify a plan&lt;br&gt;☐ Plan a follow-up meeting</td>
</tr>
</tbody>
</table>
## LAFF checklist with Examples

<table>
<thead>
<tr>
<th>Step</th>
<th>SLP behaviors</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>L</strong> LISTEN and show interest</td>
<td>□ Greet the parent, and offer some small chit chat</td>
<td>“Hi, thanks for coming in today...”</td>
</tr>
<tr>
<td></td>
<td>□ Ask about the reason for meeting</td>
<td>“What would you like to talk about today?”</td>
</tr>
<tr>
<td></td>
<td>□ Make a statement of empathy and understanding</td>
<td>“I can understand why you are concerned; this is a serious problem.”</td>
</tr>
<tr>
<td></td>
<td>□ Thank the parent for coming to meet you</td>
<td>“I appreciate that you came to talk with me.”</td>
</tr>
<tr>
<td></td>
<td>□ Show appropriate body language</td>
<td></td>
</tr>
</tbody>
</table>

Goal of this step: To communicate that the SLP is doing his or her best to understand the parent’s thoughts and feelings (empathy) and that how the parent is feeling is important to the SLP (respect).

| **A** ASK questions | □ Ask the parent for permission to take notes. | “Do you mind if I take some notes while we talk?” |
| □ Ask relevant open-ended questions | “What would I see if I was there?” |

Goal of this step: To ask good questions that will gather information on how the parent sees the problem, while communicating respect for the parent’s point of view.

| **F** FOCUS on the issues | □ Summarize the parent’s concerns | “I’d like to review what we have talked about” |
| □ Check for accuracy | “Do I have everything right?” |
| □ Ask if the parent would like to add anything | “Is there anything else you’d like to add?” |

Goal of this step: To make sure that there is a clear understanding of the issues before moving ahead.

| **F** Find a FIRST step | □ Consider the information provided and identify a plan | “I think the first step is to get more information and then we will start to think about possible solutions together.” |
| □ Plan a follow-up meeting | “I will be back in touch by Friday.” |

Goal of this step: To consider the information obtained up to that point and think about next steps.
Appendix H

Scenario Information for Simulated Parents

PARENT A—Parent overwhelmed by diagnosis and lack of communication

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and your profile but do not share this with the SLP unless asked.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #1 near the beginning of the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #2 and #3 during the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #4 when there is a pause in the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #5 if the SLP asks you for additional thoughts or questions.</td>
</tr>
<tr>
<td>Background:</td>
<td>• Your name is Denise Charles and your daughter, Sarah, is 4 years old and has a diagnosis of Autism. Sarah is just starting pre-kindergarten at a new school. She received her diagnosis within the last year. She has been receiving speech therapy since 1-year of age. She currently uses a communication app on an iPad.</td>
</tr>
<tr>
<td>Your profile:</td>
<td>• You are a single mother of Sarah. You work two jobs and Sarah spends a lot of time with her grandparents.</td>
</tr>
<tr>
<td></td>
<td>• You feel guilty because you want to spend more time with Sarah, but it is difficult with your current employment.</td>
</tr>
<tr>
<td></td>
<td>• You are very overwhelmed with Sarah’s diagnosis and her lack of communication. You believe that the iPad is not working for Sarah and you don’t know how to help her.</td>
</tr>
<tr>
<td>Beginning  *required</td>
<td>Statement #1:</td>
</tr>
<tr>
<td></td>
<td>• I just wanted to meet you and see if Sarah can get something else to help her talk.</td>
</tr>
<tr>
<td>During conversation *required</td>
<td>Statement #2:</td>
</tr>
<tr>
<td></td>
<td>• She spends a lot of time with my parents. They don’t know how to work the iPad.</td>
</tr>
<tr>
<td></td>
<td>• She gets so frustrated and then I get frustrated.</td>
</tr>
<tr>
<td>If pause in conversation *required</td>
<td>Statement #3:</td>
</tr>
<tr>
<td></td>
<td>• I just don’t know how to help her say what she wants to say. I feel like there has to be a better way.</td>
</tr>
<tr>
<td>If asked for additional thoughts/Questions</td>
<td>Statement #4:</td>
</tr>
<tr>
<td></td>
<td>[pause for 5 seconds]</td>
</tr>
<tr>
<td></td>
<td>• I’m doing all I can.</td>
</tr>
</tbody>
</table>
# PARENT B—Parent worried about social isolation of child

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and your profile but do not share this with the SLP unless asked.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #1 near the beginning of the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #2 and #3 during the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #4 when there is a pause in the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #5 if the SLP asks you for additional thoughts or questions.</td>
</tr>
<tr>
<td>Background:</td>
<td>• Your name is Jennifer Mitchell and your son, Wesley, in 8-years old. Wesley has severe apraxia. His speech is extremely difficult to understand. He currently uses a small handheld AAC device.</td>
</tr>
<tr>
<td></td>
<td>• Wesley has been receiving AAC services from an outpatient pediatric hospital for the past 2 years.</td>
</tr>
<tr>
<td></td>
<td>• He also receives 30 minutes of therapy from his school-based SLP.</td>
</tr>
<tr>
<td>Your profile:</td>
<td>• You are the mother of Wesley. You are married and Wesley is your only son.</td>
</tr>
<tr>
<td></td>
<td>• You emailed your son’s outpatient SLP and asked to meet. You are frustrated because you have tried to contact the school-SLP but you haven’t received a response.</td>
</tr>
<tr>
<td></td>
<td>• You are concerned that your son is socially isolated and is having difficulty making friends.</td>
</tr>
<tr>
<td></td>
<td>• Recently, you attended an event at Wesley’s school. While in his classroom, you were able to observe Wesley and his classmates. You noticed that Wesley was often alone and rarely interacted with his peers. At one point, you saw him laugh at a classmate’s joke and try to communicate to his classmates with no success.</td>
</tr>
<tr>
<td>Beginning</td>
<td>Statement #1:</td>
</tr>
<tr>
<td>*required</td>
<td>• I’m worried that Wesley has no friends and he is having trouble making friends. I don’t know how to help him.</td>
</tr>
<tr>
<td>During conversation</td>
<td>Statement #2:</td>
</tr>
<tr>
<td>*required</td>
<td>• He tries to communicate with his words but no one can understand him.</td>
</tr>
<tr>
<td></td>
<td>• He doesn’t like carrying his device around, so he never has it on him.</td>
</tr>
<tr>
<td>If pause in conversation</td>
<td>Statement #4:</td>
</tr>
<tr>
<td>*required</td>
<td>• I’m afraid that if he doesn’t make friends now, it will just get worse as he gets older.</td>
</tr>
<tr>
<td>If asked for additional thoughts/ Questions</td>
<td>Statement #5:</td>
</tr>
<tr>
<td></td>
<td>• Will he ever be able to use his speech?</td>
</tr>
</tbody>
</table>
PARENT C—Parent wants a new device for child

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and your profile but do not share this with the SLP unless asked.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #1 near the beginning of the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #2 and #3 during the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #4 when there is a pause in the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #5 if the SLP asks you for additional thoughts or questions.</td>
</tr>
</tbody>
</table>

Background:
• Your name is Lynette Clark and your daughter, Stephanie, is 14-years old. Stephanie is diagnosed with ASD. Your daughter exhibits many challenging behaviors and can become aggressive.
• Stephanie has significant difficulties communicating and has been using an iPad app for the past 6 months.
• Stephanie receives AAC services at school and at a private practice 2x a week.
• You are highly involved in Stephanie’s services and care.

Your profile:
• You are the mother of Stephanie. You are married and have three older sons, who are all out of the house.
• You are highly involved in Stephanie’s services and care. You are involved in a number of parent support groups and you coordinate various ASD events in the community.
• You are excited because you recently saw that TobiiDynavox released a new app on Twitter. You think it will be perfect for Stephanie. Stephanie started using a new app 6 months ago, but you don’t think that it’s a good fit.

Beginning
*required
Statement #1:
• I think Stephanie needs to try a new app. I saw that TobiiDynavox released their new app and it looks like it would be a good fit.

During conversation
*required
Statement #2:
• It takes her too long to find the word she’s looking for.
• The new app seems easier to understand.

If pause in conversation
*required
Statement #4:
• We can always come back to what she’s using now if the new one doesn’t work.

If asked for additional thoughts/Questions
Statement #5:
• She just becomes so frustrated when she can’t find the word she wants.
Parent D—Parent questioning the need for AAC, worried about impact on spoken language

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and your profile but do not share this with the SLP unless asked.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #1 near the beginning of the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #2 and #3 during the conversation.</td>
</tr>
<tr>
<td></td>
<td>• Use statement #4 if the SLP asks you for additional thoughts or questions.</td>
</tr>
</tbody>
</table>

Background:
• Your name is Anna Fratner and your son, Charlie, is a 2-year old boy with Down Syndrome.  
• Charlie is not yet talking. He has an iPad with a communication app that his SLP recommended for him to use about 6 months ago.  
• Charlie has been receiving speech and language services through early intervention. Once a week, his SLP goes to his daycare to provide therapy.  

Your profile:
• You are the mother of Charlie. You are newly married and Charlie is your first child.  
• You met with Charlie’s SLP about 6 months ago. She spent 2 hours with you and your husband. She introduced a communication app to you and showed you how to work the app. It seemed to make sense when the SLP used it with Charlie, but you always feel lost and frustrated when using the app.  
• Your husband doesn’t think that Charlie should be using his iPad to communicate and that he will talk when he is ready.  
• Now you are worried that Charlie won’t learn how to talk if he keeps using the app in therapy and at home.  

Beginning
*required  
Statement #1:
• I’m worried that Charlie isn’t talking yet.  

During conversation
*required  
Statement #2:
• My husband thinks that if we keep using the iPad, Charlie won’t even bother learning to talk.  

During conversation  
*required  
Statement #3:
• I just don’t know how to help when he wants something and can’t tell me what it is.  

If asked for additional thoughts/Questions  
Statement #4:
• Some days he likes using the iPad, and other days not so much.
Appendix I

Scenario Information for Students

PARENT A—James Charles

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLP</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• You received a message from the school secretary saying that Sarah’s father, James Charles, would like to come in and meet you at 3:30, right after your last therapy session of the day.</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and address the parent’s concern as best you can.</td>
</tr>
<tr>
<td></td>
<td>Background:</td>
</tr>
<tr>
<td></td>
<td>• Sarah is a 4-year old pre-kindergarten student with Autism who was just added to your caseload. She received her diagnosis within the last year. She has been receiving speech therapy since 1-year of age. According to her intake report, she currently uses laminated picture symbols to communicate.</td>
</tr>
<tr>
<td></td>
<td>• It is the first week of school and you will start therapy with Sarah next week.</td>
</tr>
</tbody>
</table>

PARENT B—Jennifer Mitchell

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLP</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• You work at an outpatient pediatric hospital. You receive an email from a mother of a boy on your caseload. Mrs. Mitchell writes in her email that she would like to meet you to discuss her son’s progress with AAC.</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and address the parent’s concern as best you can.</td>
</tr>
<tr>
<td></td>
<td>Background:</td>
</tr>
<tr>
<td></td>
<td>• Wesley Mitchell is an 8-year old boy with severe apraxia. His speech is extremely difficult to understand. He currently uses a small handheld AAC device.</td>
</tr>
<tr>
<td></td>
<td>• You have been Wesley’s SLP for 2 years. Wesley also receives 30 minutes of services at his elementary school. You have never contacted the school-SLP regarding Wesley.</td>
</tr>
</tbody>
</table>
PARENT C—Lynette Clark

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLP</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• You work at a private practice. You have received a request for a meeting from Mrs. Clark, Stephanie's mother.</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and address the parent’s concern as best you can.</td>
</tr>
</tbody>
</table>

Background:
• Stephanie is a 15-year old girl diagnosed with Autism. She is one of your most challenging clients as she exhibits many challenging behaviors and can become aggressive. Stephanie has significant difficulties communicating and has been using an iPad app for the past 6 months.
• Stephanie receives AAC services at school and at your private practice 2x a week.
• Mrs. Clark is highly involved in Stephanie’s services and care.
• You are pleased with Stephanie’s progress with the current iPad app.

PARENT D—Anna Fratner

<table>
<thead>
<tr>
<th>Participant</th>
<th>Scenario Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLP</td>
<td>Instructions:</td>
</tr>
<tr>
<td></td>
<td>• You work in early intervention. You visit many of your clients in their homes, and the rest in local daycares and preschools. The teacher at one of the daycares tells you that a mother of your client, Charlie, would like to meet for a quick meeting at pick-up time. You are able to move your schedule around so you can meet the mother.</td>
</tr>
<tr>
<td></td>
<td>• Read the background information and address the parent’s concern as best you can.</td>
</tr>
</tbody>
</table>

Background:
• You are meeting with Charlie’s mother, Anna Fratner.
• Charlie is a 2-year old boy with Down Syndrome. Charlie is not yet talking.
• Charlie has an iPad to use for communication, but you are unsure if he uses this at home. The app that Charlie uses allows his parents to take pictures and then add vocabulary to the pictures. You believe the app has been effective in teaching Charlie new concepts and vocabulary.
• You met with Charlie’s parents about 6 months ago. You spent 2 hours with his parents and showed them how the app worked and how to take pictures/add vocabulary on the app.
Appendix J

LAFF Strategy Scoring Rubric

LAFF RUBRIC

Please complete the questions for each role play video.
Thank you!

<table>
<thead>
<tr>
<th>1) Video Label:</th>
<th>Example: 1202a</th>
</tr>
</thead>
</table>

DURING THE ROLE PLAY,

| 2) Did the SLP... | ☐ Greet the parent  
|                   | ☐ Ask about the reason for meeting  
|                   | ☐ Make a statement of empathy  
|                   | ☐ Thank the parent for coming to meet  
|                   | ☐ Show appropriate body language |

| 3) Did the SLP... | ☐ Ask the parent for permission to take notes  
|                   | ☐ Ask 2+ relevant, open-ended questions |

| 4) Did the SLP... | ☐ Summarize the parent’s concerns  
|                   | ☐ Check for accuracy  
|                   | ☐ Ask if the parent would like to add anything |

| 5) Did the SLP... | ☐ Consider the information and identify a plan with the parent  
|                   | ☐ Plan a follow-up meeting |

Submit
# Appendix K

## Operational Definitions for LAFF Strategy Skills

<table>
<thead>
<tr>
<th>LAFF Skill</th>
<th>Operational definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Listen, Empathize, &amp; Communicate Respect</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greet the parent</td>
<td>SLP makes a welcoming statement at the beginning of the interaction.</td>
<td>“Hi, how are you?”</td>
</tr>
<tr>
<td>Ask about the reason for meeting</td>
<td>SLP makes a statement that invites the parent to state his or her concern.</td>
<td>“What would you like to talk about today?”</td>
</tr>
<tr>
<td>Make a statement of empathy and understanding</td>
<td>In response to the parent’s concern, SLP makes a statement that recognizes the parent’s concern about the problem. The statement of empathy can: • describe understanding of emotions/concern OR • show concern/empathy for the emotions of the parent</td>
<td>Describing understanding of emotions— • “I can understand that must be frustrating…” • “I can understand why you are concerned.” • “That’s definitely a concern.” Showing concern for the emotions of the parent— • “I’m sorry that this has been so difficult…” • “That must be frustrating.”</td>
</tr>
<tr>
<td>Thank the parent for coming to meet you</td>
<td>SLP makes a statement that shows appreciation for coming to the meeting.</td>
<td>“I appreciate that you came to speak with me today.”</td>
</tr>
<tr>
<td>Show appropriate body language and non-verbal behaviors; maintain appropriate eye contact</td>
<td>SLP shows appropriate body language and engagement throughout interaction. • Sits beside the parent, or diagonally from the parent (i.e., not on the opposite side of a table) • Demonstrates “open” body position (i.e., does not have tightly crossed arms)</td>
<td></td>
</tr>
<tr>
<td>LAFF Skill</td>
<td>Operational definition</td>
<td>Example</td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ask Questions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ask the parent for permission to take notes.</td>
<td>SLP asks for permission to take notes before asking questions.</td>
<td>“Do you mind if I take notes while we talk?”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“May I take notes to remember what we talk about?”</td>
<td></td>
</tr>
<tr>
<td>Ask relevant open-ended questions</td>
<td>SLP asks 2 or more relevant open-ended questions to get more information about the problem.</td>
<td>Open-ended questions—</td>
</tr>
<tr>
<td></td>
<td>• Open-ended questions allow the parent to respond in a number of different ways.</td>
<td>“Tell me about a time...”</td>
</tr>
<tr>
<td></td>
<td>*If the student adds a “could you” or “can you” before an open-ended question, this may still be counted as an open-ended question (e.g., “Could you tell me about a time...”)</td>
<td>“How are you feeling about...”</td>
</tr>
<tr>
<td></td>
<td>• Closed questions typically require a specific response (often yes/no or one-word answers).</td>
<td>Closed questions—</td>
</tr>
<tr>
<td></td>
<td>*Ask yourself, can the parent answer in one word?</td>
<td>“Has your son already received his device?”</td>
</tr>
<tr>
<td></td>
<td>*Do not count questions that are not aimed at getting more information (e.g., “Tell me when would be best to meet.”)</td>
<td></td>
</tr>
<tr>
<td>LAFF Skill</td>
<td>Operational definition</td>
<td>Example</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Focus on the Issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Summarize the parent’s concerns</td>
<td>SLP provides a summary of the main concerns expressed by the parent.</td>
<td>“I’d like to review what we have talked about”</td>
</tr>
<tr>
<td>Check for accuracy</td>
<td>SLP explicitly makes a statement or asks a question to check for accuracy.</td>
<td>“Have I got it?”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Please let me know if I misunderstood anything.”</td>
</tr>
<tr>
<td>Ask if the parent would like to</td>
<td>The SLP explicitly makes a statement or asks a question to see if the parent would like</td>
<td>“Is there anything else you’d like to add?”</td>
</tr>
<tr>
<td>add anything</td>
<td>to add anything</td>
<td>“Please let me know if there is anything to add.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Find a First Step</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consider the information provided</td>
<td>The SLP states a specific plan for what will happen next in terms of addressing the</td>
<td>“I’d like to get more information and then we can start to think about possible solutions together.</td>
</tr>
<tr>
<td>and identify a plan</td>
<td>parent’s concern (e.g., gaining more information from the child’s teacher, observing the</td>
<td>If you agree, I’d like to observe John in his classroom next week.”</td>
</tr>
<tr>
<td></td>
<td>child at home, gathering information for the parent, etc.).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>*The parent must agree on the appropriateness of the next step.</td>
<td></td>
</tr>
<tr>
<td>Plan a follow-up meeting</td>
<td>SLP states a specific timeline for follow-up with the parent.</td>
<td>“I will be back in touch by Friday.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I will call you next week to set up a meeting.”</td>
</tr>
</tbody>
</table>

NOT a generic plan, such as:
- “We’ll find a way to fix the problem.”
- “We’ll find something that works for her.”
- “That’s something we can work on.”
- “Maybe I can work on that in therapy.”
Appendix L

Social Validity Questions

Post-Training Questions
1. Would you recommend others learn the LAFF strategy?

2. What benefits do you see to using the strategy?

3. What disadvantages do you see to using the strategy?

4. In what situations (i.e., types of conversations) could you see the strategy being useful?
For questions 5-7, rate your level of agreement from strongly disagree to strongly agree. Place a checkmark in the appropriate box.

5. An online environment was effective for teaching the LAFF strategy.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

6. An in-person (i.e., face-to-face) training would be more effective for teaching the LAFF strategy.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

7. The simulated parents were effective in portraying real parents.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

8. Do you have any suggestions to improve the online training and/or simulated role plays?
Appendix M

Results from non-parametric analyses of LAFF data and MPOC-56 Respectful and Supportive Care subscale data

LAFF data

A Mann-Whitney test was completed in order to compare the gains in LAFF scores for each group from Time 1 to Time 2. It was hypothesized that Group 1 would demonstrate greater gains since they completed the training between Time 1 and Time 2. Results showed that Group 1 had statistically significant greater gains ($Mdn = 5.50$) from Time 1 to Time 2 compared to the gains made by Group 2 ($Mdn = -1.00$), $U = 1.00$, $p = .002$, suggesting that the training was effective in increasing Group 1’s use of the LAFF strategy in the role plays with simulated parents.

A Wilcoxon Signed Ranks test was completed in order to compare the gains in LAFF scores for Group 2 from Time 1 to Time 2 (i.e., pre-training) to their gains from Time 2 to Time 3 (i.e., post-training). It was hypothesized that Group 2 would demonstrate greater gains between Time 2 and Time 3, since they completed the training during this time. It was determined that Group 2 had statistically significant greater gains from Time 2 to Time 3 ($Mdn = 7.00$) compared to their gains from Time 1 to Time 2 ($Mdn = -1.00$), $Z = -2.384$, $p = .017$, suggesting that the training was effective in increasing Group 2’s use of the LAFF strategy in the role plays with simulated parents.

Similar to the parametric statistics discussed in the Results, the training was found to be effective in increasing both groups’ use of the LAFF strategy. Despite the small sample size, there was a large enough effect and enough power for both parametric and non-parametric tests to result in statistically significant treatment effects.

MPOC-56 Respectful and Supportive Care data

A Mann-Whitney test was completed in order to compare the gains in MPOC subscale scores for each group from Time 1 to Time 2. It was hypothesized that Group 1 would demonstrate greater gains between Time 1 and Time 2 than Group 2. It was determined that Group 1 did not have statistically significant greater gains ($Mdn = .955$) from Time 1 to Time 2 compared to the gains made by Group 2 ($Mdn = .188$), $U = 12.00$, $p = .064$, suggesting that the parents did not perceive Group 1 as demonstrating improved family-centered behaviors post-training.

A Wilcoxon Signed Ranks test was also completed in order to compare the gains in MPOC scores for Group 2 from Time 1 to Time 2 (i.e., pre-training) to their gains from Time 2 to Time 3 (i.e., post-training). It was hypothesized that Group 2 would demonstrate greater gains between Time 2 and Time 3 (after training) than between Time 1 and Time 2 (before training). It was determined that Group 2 did not have statistically significant greater gains ($Mdn = .563$) from Time 2 to Time 3 compared to their gains from Time 1 to Time 2 ($Mdn = .188$), $Z = -1.014$, $p = .310$, suggesting that the parents did not perceive Group 2 as demonstrating improved family-centered behaviors post-training.

The small sample size and lack of power resulted in statistically non-significant effects for both groups, when using non-parametric statistics. Although Group 1 did demonstrate a statistically significant treatment effect when using parametric statistics, the p-value was just under .05 (i.e., $p = .045$). Considering that non-parametric tests already have less power than parametric tests, this is not a surprising finding.
Appendix N

MPOC-56 Respectful and Supportive Care subscale scores from Parent 1 and Parent 2 at each time point

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th></th>
<th>Time 2</th>
<th></th>
<th>Time 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Parent 1</td>
<td>Parent 2</td>
<td>Parent 1</td>
<td>Parent 2</td>
<td>Parent 1</td>
<td>Parent 2</td>
</tr>
<tr>
<td>Group 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2.75</td>
<td>3.75</td>
<td>5.25</td>
<td>6.00</td>
<td>4.14</td>
<td>5.57</td>
</tr>
<tr>
<td>2</td>
<td>5.25</td>
<td>5.50</td>
<td>4.88</td>
<td>6.50</td>
<td>4.75</td>
<td>6.00</td>
</tr>
<tr>
<td>3</td>
<td>3.50</td>
<td>4.00</td>
<td>4.00</td>
<td>5.25</td>
<td>3.57</td>
<td>6.00</td>
</tr>
<tr>
<td>4</td>
<td>3.63</td>
<td>1.88</td>
<td>5.00</td>
<td>5.13</td>
<td>3.38</td>
<td>5.43</td>
</tr>
<tr>
<td>5</td>
<td>4.50</td>
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<td>3.63</td>
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<td>4.71</td>
<td>5.13</td>
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<td>5.63</td>
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<tr>
<td>7</td>
<td>2.63</td>
<td>4.86</td>
<td>3.00</td>
<td>3.86</td>
<td>3.43</td>
<td>5.43</td>
</tr>
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<td>8</td>
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<td>5.75</td>
<td>4.88</td>
<td>4.71</td>
<td>3.75</td>
</tr>
<tr>
<td>Group 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>5.38</td>
<td>6.29</td>
<td>5.25</td>
<td>6.00</td>
<td>4.86</td>
<td>5.86</td>
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<td>10</td>
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<td>6.50</td>
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<td>11</td>
<td>4.29</td>
<td>5.14</td>
<td>4.00</td>
<td>5.25</td>
<td>4.71</td>
<td>5.63</td>
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<td>5.00</td>
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<td>3.38</td>
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<td>5.00</td>
<td>5.75</td>
<td>4.88</td>
<td>5.50</td>
<td>7.00</td>
</tr>
</tbody>
</table>
# Appendix O

## Student Answers to Social Validity Questions

*The responses in each row are from the same participant.*

<table>
<thead>
<tr>
<th>Would you recommend others learn the LAFF strategy?</th>
<th>What benefits do you see to using the strategy?</th>
<th>What disadvantages do you see to using the strategy?</th>
<th>In what situations could you see the strategy being useful?</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would absolutely recommend it. A counseling course that incorporates LAFF could be an excellent addition to our school’s curriculum, perhaps as a Maymester course.</td>
<td>Easy to remember mnemonic device Provides a strategy for giving parents a space to provide input Intuitive steps to follow</td>
<td>Could be stilted.</td>
<td>Counseling for SLP services. Talking with friends and family about sensitive topics. Talking to a professor or student about concerns related to class.</td>
</tr>
<tr>
<td>I would. I found it to be a nice scaffolding technique when talking with parents.</td>
<td>It allows you to check yourself, to see if you are providing the parents enough time to speak, and validating their feelings.</td>
<td>It may come across as robotic. I was constantly thinking about what I should be saying next, then actually listening to the client.</td>
<td>Whenever you are talking to anyone (parent, patient, family, friends) about any concerns they have</td>
</tr>
<tr>
<td>Yes</td>
<td>It gives a structured guideline for how to interact with a parent.</td>
<td>Sometimes it could sound less natural because you’re just going through the steps</td>
<td>In a school setting with a parent who you might not see very often or only talk with over the phone</td>
</tr>
<tr>
<td>I would recommend that others learn the LAFF strategy. It provides a good basis for parent interactions and I felt more confident in the post-training role play scenarios.</td>
<td>I felt like the conversation flowed better, I better knew what to say, and the conversation was progressive other than redundant.</td>
<td>It’s possible to sound scripted sometimes, thinking about the next step may detract from naturalness.</td>
<td>This strategy could be applied to any patient interactions.</td>
</tr>
<tr>
<td>Would you recommend others learn the LAFF strategy?</td>
<td>What benefits do you see to using the strategy?</td>
<td>What disadvantages do you see to using the strategy?</td>
<td>In what situations could you see the strategy being useful?</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-----------------------------------------------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>Yes, definitely! Easy to remember for effective use.</td>
<td>Great interaction w/ parents. Step by step process to follow. Convey empathy—super important.</td>
<td>Might become unnatural if you become too rigid with following the steps.</td>
<td>Meetings with parents, clients, spouses/families of clients.</td>
</tr>
<tr>
<td>Yes, it was very helpful in laying out the ideal interaction with families.</td>
<td>Helps to build a strong parent/caregiver relationship from the start. Gives clinician confidence in working with families.</td>
<td>None</td>
<td>Conversations about parent concerns before/after AAC implementation</td>
</tr>
<tr>
<td>Definitely, I felt more confident and got more out of the meeting.</td>
<td>Making the parent feel listened to.</td>
<td>May feel too structured.</td>
<td>Definitely in parent meetings. In IEP meetings.</td>
</tr>
<tr>
<td>Yes, I feel like these steps helped me think through the interview process.</td>
<td>It gives a specific list of talking points for the interview, as well as ways to build positive rapport.</td>
<td>I think people could potentially get too focused on sticking to the script that they may not seem interested/it may seem like they are just going through the motions.</td>
<td>When speaking with concerned parents. IEP meetings. When holding intervention meetings.</td>
</tr>
<tr>
<td>Yes, I think it is important for others to learn the LAFF strategy.</td>
<td>Giving a specific list of steps that will help to structure the meeting.</td>
<td>You may be so concerned with following the steps you may come off monotone or that you do not care about the individual.</td>
<td>In conversations that the parent seems very concerned or stressed, I think the strategy would be helpful.</td>
</tr>
<tr>
<td>Would you recommend others learn the LAFF strategy?</td>
<td>What benefits do you see to using the strategy?</td>
<td>What disadvantages do you see to using the strategy?</td>
<td>In what situations could you see the strategy being useful?</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
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</tr>
<tr>
<td>Yes, I thought it was very informative.</td>
<td>This strategy gives you something to go off to make sure you are addressing all of the parent’s concerns.</td>
<td>None</td>
<td>When meeting with parents about their child’s concerns.</td>
</tr>
<tr>
<td>Yes</td>
<td>It makes the parent feel understood and the SLP appear more professional</td>
<td>It can make the interaction seem more scripted, at least at first.</td>
<td>First encounters (of the parent kind).</td>
</tr>
<tr>
<td>Yes</td>
<td>Gives a nice general framework to keep in mind when meeting with parents even though they have specific topics to discuss.</td>
<td>None</td>
<td>Especially in assessment/evaluations, but across any interactions with family members receiving any kind of SLP services</td>
</tr>
<tr>
<td>Yes, it was an easy way to incorporate appropriate behavior when talking to parents.</td>
<td>It helps build rapport parents.</td>
<td>More focused on using the strategy than actually listening to the parent.</td>
<td>With parents and clients themselves.</td>
</tr>
<tr>
<td>Yes</td>
<td>Gives a solid framework to fall back on.</td>
<td>There might be situations where the structure might not be appropriate.</td>
<td>Conversations where the client needs support from home to supplement therapy.</td>
</tr>
<tr>
<td>Yes</td>
<td>Family centered approach</td>
<td>Too structured Felt unnatural Wont generalize to all situations</td>
<td>Quick meetings less than 5 minutes.</td>
</tr>
<tr>
<td>Yes</td>
<td>Focus on empathetic responses. Remembering to consider the parents needs.</td>
<td>May be too structured.</td>
<td>Conversations about concerns, rather than informative sessions, although some aspects may still be useful.</td>
</tr>
</tbody>
</table>


VITA

Kelsey Mandak

**Education**
2018 *Doctor of Philosophy* in Communication Sciences and Disorders (expected)
Pennsylvania State University, University Park, PA
2013 *Master of Arts* in Communication Science & Disorders
University of Pittsburgh, Pittsburgh, PA
2010 *Bachelor of Science* in Communication Sciences & Disorders
Graduation with High Distinction
Pennsylvania State University, Schreyer Honors College, University Park, PA

**Awards**
Kligman Graduate Fellow, College of Health and Human Development at Penn State University

**Publications**


**Selected Presentations**

