A Mixed Method Study of Prevent, Teach, and Reinforce for Families: The Effectiveness for Culturally Diverse Families

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Abstract

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Prevent, Teach, and Reinforce for Families (PTR-F) has been found effective in increasing parents' use of positive behavior support (PBS)-based strategies and decreasing children's challenging behavior. However, only few studies have purposefully explored the effectiveness of PTR-F for culturally and linguistically diverse (CLD) families. To address this gap, the current study explored modifications that can enhance PTR-F's cultural responsivity and examined its effectiveness on CLD families. This mixed methods study used a single-case research design to examine the effectiveness of PTR-F on parents' use of Behavior Support Plan (BSP) strategies and the effectiveness of parents' use of BSP strategies on child challenging behaviors. Qualitative interviews were conducted to understand the perspectives of CLD parents on the contextual fit of PTR-F and BSP. The results suggest that the modified PTR-F process was

functionally related to parents' use of BSP strategies and that parents' use of BSP strategies was also functionally related to reductions in child challenging behavior. CLD parents who participated in this study found the PTR-F process and their BSPs contextually fit and socially valid. This study contributes to expanding the current literature on the effectiveness of PTR-F by focusing on the voices of CLD families and investigating how their contextual factors affect the effectiveness of PTR-F.

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Chapter 1: Introduction to the Problem

One of the primary challenges that children with disabilities and their families often face is children's challenging behaviors. Challenging behaviors include, but are not limited to, tantrum, aggression, self-injurious behaviors, and protests (Doubet & Ostrosky, 2015). Occasional defiant behaviors are considered developmentally typical for young children as they just start to develop self-regulation. However, excessive and stubborn challenging behaviors at young age are linked to negative academic outcomes in the future and increased caregiver stress (Brennan et al., 2012). Unless intervened early, persistent social, emotional, and behavioral difficulties interfere with child's optimal development by hindering them from forming meaningful social relationships and learning. Young children's challenging behaviors are particularly concerning because it is one of significant predictors of preschool teacher's consideration of expulsion (Gilliam & Reyes, 2018). This concern about challenging behaviors is noteworthy for children with developmental disabilities because they are reported to show higher rates of challenging behaviors than typically developing children (Curtis et al., 2018). In the state of Washington, in fact, children whose parents reported experiencing child expulsion were 2.5 times more likely to have an Individualized Education Plan (IEP) (Washington State Department of Children, Youth, and Families, 2020) The consequences of challenging behaviors, such as an increased likelihood of being subjects to harsh disciplines and restrictive placements, can be detrimental to young children with disabilities because they prevent children with disabilities from receiving inclusive education and worsen the vicious cycle of depriving the children who need the most support of further educational opportunities.

This problem highlights a critical need to support families and practitioners in addressing challenging behaviors and promoting positive social-emotional development of young children

with disabilities. In fact, previous research has consistently supported that children's early social emotional skills are significantly related to their long-term developmental outcomes as well as the entire family's quality of life (Penela et al., 2015; Robson et al., 2020; Welsh et al., 2020). Young children with strong social skills are better in cooperating with peers, participating in group activities, and following instructions from teachers, thus increasing the likelihood of overall academic success (Robson et al., 2020; Vitiello & Wilford, 2016; Welsh et al., 2020). Children who have better social skills tend to develop positive social relationships and emotional well-being throughout their lives (Huber et al., 2019; Robson et al., 2020). Furthermore, young children's social skills are predictive of positive relationships with their parents and siblings, having a significant impact on the family quality of life (Penela et al., 2015).

Nevertheless, children often need intentional teaching to learn social and emotional skills that are necessary to navigate their early life experiences (LeGray et al., 2013). Defining and modeling positive social emotional behaviors can help children have fewer behavior problems and better social skills (Webster-Stratton & Reid, 2004). For this reason, US Department of Health and Human Services and US Department of Education (2014) has consistently promoted the importance of providing preventative and teaching practices for promoting young children's social emotional competence.

Positive Behavior Intervention and Supports (PBIS)

One of the evidence-based approaches to supporting children's social-emotional competence is the Positive Behavior Interventions and Supports (PBIS; Powell et al., 2006). PBIS guides the implementation of evidence-based strategies for promoting children's social emotional competence by understanding the intent of challenging behaviors and providing the matching strategies (Lucyshyn et al., 2002; Powell et al., 2006). PBIS involves three tiers: (1)

universal practices to support social emotional learning of all children, (2) secondary practices to meet the needs of children at risk, and (3) individualized practices for those who engage in persistent challenging behaviors (Dunlap et al., 2014). Through this tiered approach, PBIS focuses on re-designing environments and using preventative strategies to reduce challenging behaviors and increase prosocial behaviors.

The evidence base for PBIS is strong and continues to grow. According to the Technical Assistance Center on Social and Emotional Intervention, early childhood programs using PBIS approach experience reductions in child challenging behavior and increases in children's social skills (Hemmeter, et al., 2016; Jolstead et al., 2017). Evidence indicated that early childhood education teachers who received training in the implementation of PM practices showed an increase in their praise-to-reprimand ratios (Hemmeter et al., 2016; Jolstead et al., 2017). PBIS can also improve children's engagement in instructions by setting clear expectations and frequently acknowledging what children do well (Algozzine & Algozzine, 2007). Additionally, studies have supported that implementation of PBIS can significantly reduce overall disciplinary referrals and suspensions in schools (McIntosh, et al., 2021).

One of the core practices in PBIS's Tier 3 support is the use of function-based interventions. Based on the assumption that the challenging behavior occurs to serve specific function (s) for the child (e.g., accessing or escaping attention or an activity), a multi-disciplinary team with at least one person with behavior support expertise conducts Functional behavior assessment (FBA) to identify why a child behaves the way they do. By understanding the root cause of the behavior, the intervention aims to address the cause of the behavior, rather than merely addressing the behavior itself. Function-based intervention typically includes strategies for preventing challenging behaviors, teaching replacement behaviors, positively reinforcing the

replacement behaviors, and reducing rewards for challenging behaviors (Center on PBIS, 2023). Strategies in function-based interventions are individually selected based on the child's unique strengths, challenges, and environment. This individualized approach increases the likelihood of the intervention's success (Ingram et al., 2005).

Similar to PBIS approach, function-based interventions also have an extensive research base that supports its effectiveness (Horner et al., 2020; Walker et al., 2018). Function-based interventions are linked with greater reductions in challenging behaviors and improvements in instruction engagement than non-function-based interventions are (Ingram et al., 2005; von Schulz et al., 2017). Addressing an underlying cause of the behavior through a function-based interventions could also lead to long-lasting behavior changes (Wood et al., 2011). Additionally, studies have shown that function-based interventions used for young children with and without disabilities can improve the family's quality of life by reducing children's challenging behaviors (Dunlap & Fox, 2011).

Parent-implemented Intervention

Empirical studies consistently suggest that PBS practices can be effectively used in diverse settings, including preschools and home, to foster young children's social emotional development (Fettig et al., 2015; Hardaway et al., 2012). According to the Center on Positive Behavioral Interventions and Supports (2020), families can effectively use PBS strategies to build their child's social emotional skills and minimize challenging behaviors at home. Family participation in PBIS approach has been associated with improvements in child engagement, maintenance of the effects, and positive family outcomes (Buschbacher et al., 2004). When families actively learn PBS-based strategies, their children are less likely to engage in challenging behaviors (Buschbacher et al., 2004).

Historically, research suggests that preschoolers' learning experiences at home have long-term influences on their cognitive development and learning outcomes throughout early childhood (Powell & Dunlap, 2010; Trivette et al., 2010). One way to teach children social emotional skills at home is parent-implemented interventions (PII). PII is an evidence-based practice in which parents teach the child various skills using intervention practices (Steinbrenner et al., 2020). By supporting parents in creating many teaching opportunities in family's daily routines, PII aims to strengthen the effectiveness, generalizability, and maintenance of an intervention (Brookman-Frazee et al., 2009). Although these interventions may require more time and effort from parents, they can provide several benefits, including improved parent-child relationships and generalization of skills to everyday settings. Additionally, parent-implemented interventions can be cost-effective compared to traditional interventions that require professional support.

Parent can also learn to use function-based interventions to build child's social emotional skills and minimize challenging behaviors at home. The feasibility of implementing function-based interventions at home may vary depending on the family's resources, the complexity of the child's behavior, and the availabilities of supports. Nevertheless, many families have successfully used function-based interventions with supports and trainings from professionals (Fettig & Barton, 2014). Furthermore, research has shown that parents can effectively implement function-based interventions to teach children social emotional skills and address their challenging behaviors (Fettig & Barton, 2014). As the effectiveness of the intervention may depend on the implementation fidelity and the implementation consistency, it is critical that families collaborate with professionals to ensure that they implement the intervention with high fidelity and consistency.

Therefore, one critical component of parent-implemented function-based interventions is the continuous collaboration with families through coaching (Ingersoll et al., 2016). In the field of early childhood special education, practice-based coaching is often used to improve practitioners' or parents' practices and improve outcomes for young children with disabilities. On-going and individualized support embedded in practice-based coaching are essential for the success of parent-implemented interventions for young children with disabilities. Consistent collaborations between parents and practitioners help parents learn necessary skills for the intervention, adapt the intervention to the changing needs of their children, build confidence in their ability to provide effective intervention, and maintain consistency while implementing the intervention. However, frequently providing face-to face support at family's home can be time- and resource-consuming and is not available for remote or rural communities. Research also indicates that most families of young children older than 3 years old with disabilities rarely have access to home-based supports for challenging behaviors (Lucyshyn et al., 2015). Therefore, it is critical to develop an intervention delivery model that can make function-based intervention and on-going supports accessible in families' home.

Prevent-Teach-Reinforce for Families

Prevent-Teach-Reinforce for Families (PTR-F) is a manualized form of PBS intervention process that specifically includes family-centered components (Joseph et al., 2021). Modified from Prevent-Teach-Reinforce (PTR; Dunlap et al., 2010) for school-aged children and Prevent-Teach-Reinforce for Young Children (PTR-YC; Dunlap et al., 2013) in early childhood education settings, PTR-F aims to support families in resolving their children's challenging behavior problems in their homes and communities (Dunlap et al., 2017). PTR-F process is similar to PTR and PTR-YC in that it is based on the principles of PBS and focuses on

developing individualized behavior support plans (BSP) based on functional assessment. Nevertheless, it is distinctive from the former two models in terms of its emphasis on collaborations between the practitioner and the family, setting a goal that is meaningful to the family, and using a family routine as an intervention setting. The PTR-F guidebook explains each step of PTR-F process in details and provides necessary forms for functional behavior assessment and implementation fidelity evaluations.

Research has shown that PTR-F is effective in reducing children's challenging behavior and increasing parents' use of PBS-based practices (Baily & Blair, 2015; Sears et al., 2013; Joseph et al., 2021). Sears and colleagues (2013) found that PTR-F could help children use the replacement behavior in target routines as well as non-target routines. Parents who participated in PTR-F in the same study could also implement the PTR-F process for a new routine at home. Additionally, another study demonstrated that parents learned to independently monitor their child's progress using the individualized behavior rating scale tool after participating in the PTR-F process (Baily & Blair, 2015). Literature also suggests that PTR-F is a promising intervention for supporting families of children with challenging behaviors regardless of its delivery format. In a recent study by Hodges and colleagues (2022), PTR-F delivered in a remote format (PTR-F: R) showed the similar impact of reducing children's challenging behavior and improving parent implementation fidelity of behavior support plans. Overall, PTR-F has a strong evidence base and makes meaningful impact on families' lives (Baily & Blair, 2015; Hodges et al., 2022; Joseph et al., 2021; Sears et al., 2013).

PTR-F and Culturally and Linguistically Diverse Families

As with any intervention program, however, the effectiveness of PTR-F may vary depending on the specific circumstances of each family. As the population in the United States is

increasingly diverse, the need for culturally responsive intervention is growing (Vespa et al., 2018). Culture and contexts are critical factors to consider in family-centered practices because a variety of cultural dimensions, such as ethnicity, linguistic backgrounds, and religion, can influence the family's goals, values, and parenting practices (LeCuyer, et al., 2011). Families from different socioeconomic backgrounds also may have varied access to resources, support systems, and norms that can impact the success of PTR-F. Without considering the family's financial resources and support system, practitioners may not be able to provide strategies that are feasible and sustainable for the family. To reduce the disparities in educational outcomes between culturally and linguistically diverse children with disabilities and those from dominant groups, it is crucial that practitioners tailor the PTR-F approach to align with the family's unique needs and contexts.

Research studies consistently report that children with disabilities from underrepresented communities are the ones who need the quality and sustainable intervention the most (Peterson, et al., 2010; Casagrande, & Ingersoll, 2017). For example, a meta-analysis of parent training studies indicated that parent training can be least effective for parents with low socioeconomic status and that they would benefit significantly more from individually delivered training than from group delivered one (Lundahl, et al., 2006). Olivos and colleagues (2010) also pointed out that culturally and linguistically diverse families are more likely to be isolated compared to other families because they may have lost the system of support from extended family members or community while they relocated or immigrated to the US. The isolation places culturally and linguistically diverse families at a higher risk of experiencing difficulties as they try to access or utilize the services that they receive (Rueda et al., 2005). This implicates that culturally and linguistically diverse families may have limited experiences with parent-implemented

interventions like PTR-F or sometimes encounter misunderstandings while collaborating with the practitioners.

Nonetheless, only a few research purposefully explored the effectiveness of parent-implemented interventions for culturally and linguistically diverse families (Cheremshynski, et al., 2012; Robertson, 2016; Zhou et al., 2018; Cosbey & Muldoon, 2017). Like most parent-implemented behavior intervention studies, PTR-F's efficacy has been also studied largely for Caucasian, middle class, and two-parent families (Argumedes et al., 2021; Hodges et al., 2022; Joseph et al., 2021). When it comes to PTR-F delivered in a remote format, furthermore, no study has explored its effectiveness for culturally and linguistically diverse families. The most recent study that tested the efficacy of PTR-F delivered in a remote format also did not report the participants' cultural and socioeconomic demographic information (Hodges et al., 2022). This gap in literature calls for more research that examines how different sociocultural backgrounds influence the effectiveness of PTR-F model for children with disabilities.

Purpose of the Study

The purpose of this study is to address the limitation of previous research and expand the literature on PTR-F model for culturally and linguistically diverse families. Through this study, I examined the effectiveness of PTR-F for culturally and linguistically diverse families of young children with disabilities. The study also explored the PTR-F model's components that families perceive to be crucial for it to be effective and feasible. This study will contribute to expanding knowledge on the efficacy of PTR-F for diverse populations and creating more spaces for culturally underrepresented families' voices. This study explored three research questions:

1. Is there a functional relation between the PTR-F and the parent use of BSP strategies?

2. Is there a functional relation between the parent use of BSP strategies and child challenging behaviors?
3. How do parents from culturally diverse communities perceive the contextual fit of PTR-F process?

Chapter 2: Literature Review

This chapter will start with the statement of conceptual underpinnings that influence my approach to this study. The literature review that follows has three purposes. First, the chapter will review the significance of parent participation in education for young children and introduce different forms of parent participation in Positive Behavior Interventions and Supports (PBIS) approach. The second part of the chapter will introduce parent-implemented intervention as one type of family-centered intervention and review the essential factors for successful collaborations in PII. The chapter will then particularly focus on Prevent, Teach, and Reinforce for Families (PTR-F) as an example of PII based on PBIS approach. Based on the critical examination of literature on PTR-F, finally, the chapter will propose a way to adapt PTR-F model for meeting the needs of culturally and linguistically diverse families.

Conceptual Foundation

My approach to this study is based on Bronfenbrenner's (1992) ecological systems theory and Epstein's (2010) theory of overlapping spheres of influence. According to the systems theory, the family is a complicated social system in which family members' needs and experiences affect one another. This developmental-ecological model recognizes the family as the most significant influential system in children's early learning. Therefore, the core principles of the systems theory suggests that family should be at the core of educational practices for young children. For example, the most central principle—"no individuals can be understood without recognizing how he or she fits within the entire family"—urges practitioners to acknowledge that the family consists of many parts and to consider the different parts' influences on the child for understanding the "whole" child (Friend & Cook, 2017, p.267). Another principle—"family interactions with the school, community, extended family, and friends is

essential to the life of the family"—also underscores the value of partnership between the family and the school (Friend & Cook, 2017, p.267).

Another conceptual framework that emphasized the importance of interactions between family and practitioners in children's learning was Epstein's theory of overlapping spheres of influence (Epstein, 2010). According to Epstein's theory, children learn and grow in three major contexts, or spheres, of family, school, and community. The spheres overlap in their goals, resources, and practices. The family-practitioner collaboration can push the spheres of family and educational influences simultaneously (Epstein, 1990). Epstein (1990) contended that families and practitioners should guide children in accomplishing their own achievements by emphasizing their shared responsibilities to promote children's motivation to learn.

The last theoretical perspective that largely shaped my approach to this study is applied behavior analysis. Rooted in behavioral theory, applied behavior analysis focuses on identifying the functional relationship between behaviors and environmental factors and directly measuring observable behaviors (Cooper et al., 2007). The PBIS approach, the foundation of the proposed intervention, is deeply rooted in a behavioral perspective. PTR-F's key components, such as functional behavior analysis, function-based behavior interventions, and data-based decision making, are also derived from applied behavior analysis theory (Sugai & Horner, 2002).

Significance of Family Participation in Education for Children with Disabilities

Families play a critical role in child's ongoing learning and overall development (Bagdi & Vacca, 2005; Powell & Dunlap, 2010). Parent-child interactions have a significance influence on young children's social emotional development, shaping how they manage emotions, form relationships, and control impulses throughout their lives (National Research Council and Institute of Medicine, 2002). Given the family's critical influence and the Bronfenbrenner's

theory (1986) that children learn in various interconnected environment, actively partnering with families is essential for children's overall growth. Families can share a unique perspective about their children when they participate in their child's learning, providing practitioners valuable information about best ways to teach the children. Studies indeed have supported that family engagement plays a significant role in shaping children's social emotional competence and reducing their challenging behaviors (Sheridan et al., 2010). Additionally, family participation in the learning of young children with disabilities is linked to children's high motivation to learn, academic achievement, and other intervention outcomes (Bariroh, 2018; Latunde, 2017). Therefore, family participation in early childhood education is crucial for enriching the overall learning experiences of children with disabilities.

Types of Parent Participation in PBIS

Researchers have studied various ways to engage families in implementing PBS-based strategies for the past decade. One example is parent education. In parent education, families usually attend weekly training sessions where they meet a parent educator individually or in a small group to learn intervention strategies (Stahmer & Gist, 2006; Ingersoll & Dvortcsak, 2006; Webster-Stratton & Reid, 2017). Intervention strategies parents learn vary depending on their children's individual needs and the intervention program's focus (Stahmer & Gist, 2001; Symon, 2005; Ingersoll & Dvortcsak, 2019). Research has found parent education is effective at increasing parents' knowledge and implementation of PBS-based intervention techniques (Stahmer & Gist, 2001; Symon, 2005; Ingersoll & Dvortcsak, 2006). Parents who attended the parent education also demonstrated improved parental attitude, more frequent positive parent-child interactions, and less harsh disciplinary actions (Webster-Stratton & Reid, 2017). Additionally, children of parents who received parent education improved their social

communication skills and engaged in fewer challenging behaviors (Stahmer & Gist, 2001; Symon, 2005; Ingersoll & Dvortcsak, 2006; Webster-Stratton & Reid, 2017).

The shortcoming of parent education is that practitioners and families may not directly collaborate with each other throughout the intervention. Most parent education sessions involve didactic presentation, watching videotaped examples, collaborative goal development, problem solving or self-reflective discussion, modeling and coaching by a parent educator, and practicing the intervention strategies (Stahmer & Gist, 2006; Symon, 2005; Ingersoll & Dvortcsak, 2006; Webster-Stratton & Reid, 2017). Practitioners and families could collaborate to develop a child goal and brainstorm problem solving strategies during the parent education. However, the parent education format tends to use a one-way style of communication where practitioners choose strategies that reflect their priorities for the child's development and deliver information to parents through modeling and didactic instructions. This style of communication may prevent practitioners from incorporating family's strength and culture, creating barriers to successful collaboration.

Another way for families to learn and use PBS-based strategies is family-centered PBS interventions. Similar to parent education, family-centered PBS intervention focuses on supporting families in using evidence-based strategies through didactic presentation, modeling, coaching and discussion. Nevertheless, family-centered PBS intervention involves more collaborations between families and practitioners throughout planning and implementation procedures. In the family-centered partnership, practitioners and family members consider each other as equally competent collaborators with valued knowledge and expertise. Practitioners focus on family's strengths and resources for problem solving and share information with families to make collaborative decisions (Turnbull et al., 2000). In Conjoint behavior

consultation (CBC), for instance, a practitioner helps parents and teachers collaboratively identify a primary goal, co-construct an implementation plan, implementing the plan across various settings, and collect data together, and problem solve as a team (Sheridan et al., 2006).

Family-centered PBS interventions also include more bi-directional information exchanges between families and practitioners than the parent education format of collaboration. Practitioners in family-centered PBS interventions are positioned as learners as they try to understand each family's cultural values, parenting practices and philosophies (Fettig et al., 2015; Cheremshynski et al., 2012). Research demonstrates that family-centered PBS interventions are effective at improving children's behaviors and parents' use of PBS strategies. (Cheremshynski et al., 2012; Fettig et al., 2015). Families who participate in family-centered PBS interventions are also highly satisfied with the implementation process, the results, and the contextual fit of the intervention (Cheremshynski et al., 2012; Fettig et al., 2015).

Parent-Implemented Interventions (PII)

One example of family-centered practice is Parent-Implemented Interventions (PII). PII is an evidence-based practice in which parents implement intervention practices to teach their child variety of skills, including communication, social-emotional, or play skills (Steinbrenner et al., 2020; National Autism Center, 2015). In the field of early childhood special education (ECSE), PII often aims to improve the effectiveness, generalizability, and maintenance of interventions by working with parents in creating teaching opportunities in the family's daily routines (Brookman-Frazee et al., 2009). PII can be used with other evidence-based practices, such as naturalistic interventions or video modeling, or embedded within manualized interventions, such as Project Improving Parents as Communication Teachers (ImPACT) and Stepping Stones Triple P (SSTP) (Besler & Kurt, 2016; Harrop et al., 2017; Steinbrenner et al.,

2020; Ingersoll & Dvortcsak, 2019). Research has supported that PII is effective for improving parents' use of naturalistic teaching strategies, children's social skills, and parents' well-being (Meadan et al., 2014; Casangrande & Ingersoll, 2017; Wong et al., 2015).

PIIs vary in target skills and intervention strategies, but collaborations between practitioners and families are essential in any type of PII. Practitioners support parents or other caregivers to implement evidence-based strategies in their home and community through various methods, including didactic training, modeling, and coaching (Ingersoll et al., 2016; Wong et al., 2015). Collaborative partnerships between practitioners and families are critical for selecting strategies that reflect the family priorities and increasing the family's feeling of empowerment, which can affect the success of PII. Therefore, practitioners and researchers have increasingly used collaborative approaches in PII. One example of the collaborative approaches is coaching. Coaching provides families with opportunities to reflect on their practices and lead problem-solving (Rush et al., 2003). Additionally, interactive processes in coaching, such as joint planning, information sharing, and guided practice, promote constant collaborations between practitioners and families (Rush & Shelden, 2011, Friedman et al., 2012).

Key Factors for Effective PII Implementation

Shared Decision Making. One of essential elements for PII implementation is shared decision making. For practitioners and families to successfully partner with each other, it is important that each party has equally valued inputs and equal power in decision making (Friend & Cook, 2017). The team can reach to parity, one of key factors of successful collaboration, when both parties have decision making options and affirm each other (Blue-Banning et al., 2004). For both families and practitioners to equally participate in decision making processes, effective communication is a must (Blue-Banning et al., 2004). Effective communication is

described to be positive, clear, respectful, predictable, and consistent (Turnbull et al., 2009). Quality communication during decision making should also be bi-directional. Bronfenbrenner (1992) asserted that bi-directional exchanges between families and practitioners are imperative at enhancing children's development. Indeed, several studies have demonstrated that families are more likely to engage in children's learning when practitioners and families maintain effective bi-directional communications (Epstein, 2010; Reedy & McGrath, 2010). In the context of PII, therefore, developing and incorporating a way to practice decision making through consistent bi-directional communications is crucial.

Quality Relationships. Another key factor for successful PII implementation is high-quality relationships established upon trust and respect. When families and practitioners trust each other, they feel more confident and open while discussing sensitive issues about children's development (Reedy & McGrath, 2010). As being able to comfortably hold sensitive conversations together is a foundation for high-quality relationships, working on mutual trust early on is imperative in enhancing family-practitioner collaboration in PII. Additionally, respect appears through practitioner's practice of honoring cultural diversity of families, valuing the child, focusing on family's strengths, and avoiding being judgmental (Blue-Banning et al., 2004). At the center of practicing respect is honoring cultural diversity through building cultural competence. Understanding the family's culture is foundational to understanding children as well as providing them effective services. Family's culture significantly affects their values and beliefs, eventually having critical influences on children's development (LeCuyer et al., 2011). Therefore, practitioner's role of building cultural competence is critical in effectively implementing PII.

Importance of Culturally Responsive Approach

To ensure the success of PII, holistically assessing the family's strengths, needs, and other environmental factors is crucial. Various sociocultural factors, such as language, values, and beliefs, influence the family and practitioner's dynamics and relationship-building. Therefore, PII practitioners must navigate the family-practitioner collaborations through multiple factors, including cultural considerations.

Previous works in the literature have explored various approaches, including culturally relevant pedagogy (Ladson-Billings, 1994) and culturally responsive pedagogy (Gay, 2000), to acknowledge cultural contexts of children and families and respect their practices. Aiming to counter the deficit-based approaches that perceive cultural and linguistical practices of communities of color as flaws to be resolved, these approaches have inspired culturally sustaining pedagogy (CSP), the current asset-based pedagogy. CSP aims to uphold linguistic, literate, and cultural plurality as an integral part of the democratic project of education (Paris, 2012, p.95). CSP invites educational systems to value and support diverse practices of families and young children (Paris & Alim, 2017). The cultural and linguistic practices include not only tangible experiences and events like celebration of family traditions, but also intangible experiences, such as cultural beliefs, family values, and language (Morrison et al., 2008). In the context of PII, such practices are found in the daily routines of family homes and communities. By supporting families' participation in culturally shaped activities and linguistic practices, PII practitioners can sustain the community's cultural plurality and contribute to positive outcomes. According to CSP, honoring families' cultural and linguistic practices can significantly contribute to their strengths and sense of competence (Paris, 2012; Paris & Alim, 2014). Therefore, it is critical that PII practitioners often engage families in reflective practices through

which families recognize their cultural competence. The cultural and linguistical affirmation through reflections can eventually support families' work with their children during PII.

Prevent, Teach, and Reinforce for Families (PTR-F)

Prevent, Teach, and Reinforce for Families (PTR-F) is a PII that involves the key factors discussed above. A manualized model of intervention for supporting families in reducing their children's challenging behavior and teaching alternative social and emotional skills, PTR-F process involves five steps: initiating process, assessment, intervention, coaching, and monitoring plan for implementation and child progress (Dunlap et al., 2017). Each step involves evidence-based and family-centered practices that incorporates some of the key factors of effective PII implementation (Dunlap et al., 2017).

During the initiating meeting, a team of a practitioner and family members discuss the importance of family-centeredness and long-term and short-term goals (Dunlap et al., 2017). This could involve talking about ideal parent-child interactions, desired social emotional skills for a child, and settings or routines that the family wants to prioritize for the intervention. This discussion requires bi-directional communications through which both families and practitioners to actively listen to each other and share their thoughts. By discussing the family's goals and desires, the team recognizes that family members are experts in their own lives and have unique insights into what will work best for their family. This shared decision making process helps the team achieve parity and sets a foundation for quality relationship between the practitioner and the family by fully considering family perspectives.

The second and third step of PTR-F—conducting functional behavior assessment (FBA) and implementing an individualized behavior support plan (BSP)—also involves shared decision making. During FBA, a parent shares their insights about antecedents and consequences of

challenging and desirable behaviors. Then the practitioner and the parent develop a hypothesis about the function of challenging behavior together as a team. To formulate a BSP based on the FBA, the practitioner provides the parent with a menu of evidence-based strategies in the PTR-F manual, such as using visual schedules, providing choices, and embedding teaching opportunities, and reinforcing desirable behaviors. With the practitioner's guidance, the parent has the power to choose at least one prevent strategy, one teach strategy, and one reinforce strategy that target the function of challenging and desirable behaviors. Additionally, practitioners and families constantly engage in two-way communications to tailor the BSP to the family's specific needs and preferences. During the steps of FBA and creating a BSP, the parent becomes an expert and a decision maker with the equal amount of power for formulating the intervention. This process helps build trust between families and practitioners by demonstrating that practitioners value and respect the family's perspective.

The coaching embedded throughout the entire PTR-F process also contributes to the effectiveness of PTR-F as PII. Once family starts implementing the BSP in their home, the practitioner provides ongoing support using a practice-based coaching model. This often involves the team reflecting on the progress together, engage in problem-solving, exchanging positive and constructive feedback based on observations, and making actions steps to achieve the behavior goals in the BSP. Regular coaching sessions provide the team with many bi-directional communication opportunities for solving problems and modifying intervention plans through shared decision making. As the team constantly revisits BSP and makes relevant action steps to achieve a mutual goal, practitioner's understanding of the family's culture and trust between the practitioner and family increases. Furthermore, reflective practices in coaching incorporates family-centered, culturally responsive approach. Practitioners honor the family's

unique routines or cultural ways of being throughout the PTR-F process and support families in maintaining such practices through coaching. The affirmation of cultural practices, as well as promoting families to reflect on their strengths and problem-solving skills, during coaching can contribute to family's sense of competence.

Researchers have found PTR-F with these core steps to be beneficial for families and children with social emotional needs. In Joseph and colleagues (2021)'s recent study, families who participated in the PTR-F process implemented the behavior support plans (BSPs) with high fidelity. The results supported that a functional relation exists between the PTR-F and the decrease in child's challenging behavior as well as the increase in alternative social skills. Families who participated in PTR-F also reported high satisfaction with target routines and self-efficacy for implementing the BSPs (Joseph et al., 2021). Additionally, Sears and colleagues (2013) found that PTR-F is also effective at generalizations. Parents who participated in the PTR-F process could implement the same process for an original routine at home. Their children also used the alternative social skills not only in target routines but also in non-target routines. In Baily and Blair (2015)'s study, furthermore, parents who participated in the PTR-F process acquired a skill to independently monitor their child's progress using the individualized behavior rating scale tool, suggesting a potential long-term benefit of the PTR-F.

Limitations of PTR-F

Nevertheless, PTR-F also has limitations. The major limitation is the lack of structure and time for establishing trust and cultivating cultural competence. Reaching the state of feeling culturally competent in one culture takes significant amount of time at the beginning of the intervention (Cheremshynski et al., 2012). However, practitioners spend about 16 hours on average with each family throughout a PTR-F intervention (Joseph et al., 2021). This indicates

that practitioners may have limited amount of time to build rapport and thoroughly understand the family's unique culture and practices. This can result in a lack of trust between the practitioner and the family, leading to poor outcomes. Though the consideration of family's cultural values and accordingly adapting the PTR-F process seems critical, the PTR-F manual does not include structured activities or steps invested for this purpose.

Additionally, PTR-F relies on a coaching model that assumes that all families have the resources and capacity to engage in behavior support planning. However, some families may face barriers to participation, such as language barriers, limited access to resources, or other challenges that may affect their ability to fully participate. This can limit the effectiveness of the intervention and reduce its impact on the outcomes of the child and the family. Though the PTR-F manual describes the importance of relationship and the significance of considering cultural differences in the coaching chapter, it still leaves practitioners with little guidance around how to adapt the program to be more culturally responsive, tailor the coaching process for families who experience barriers to participation. Considered that trust is a foundation for any collaborative relationships in PII, lack of structure or time to establish trust and build rapport with families may prevent culturally and linguistically diverse families from feeling supported and engaged in the coaching process.

Despite these concerns, PTR-F's efficacy has been studied largely for Caucasian, middle class, and two-parent families (Argumedes et al., 2021; Hodges et al., 2022; Joseph et al., 2021). Only a handful of researchers have evaluated the effectiveness of PTR-F with families from diverse racial backgrounds. For example, Argumedes and colleagues (2021) conducted a randomized trial to compare the effect of the PTR-F to a control and less intensive interventions on children's challenging and desirable behaviors. Of total 23 participants, nine children were

identified as Caucasian, two were black, and 12 were “others”. 13 children spoke French at home, seven spoke English, and 3 spoke “other” languages. The results showed that PTR-F was effective in reducing children’s challenging behaviors and improving parenting skills, regardless of the families’ race or language at home. However, this study provided racial demographic and linguistic information in only three categories. It also did not report other cultural or socioeconomic information, such as the family’s income level, educational background, or marital status. These limitations indicates that a need exists for more research to evaluate the effectiveness of PTR-F with families from various cultural and socioeconomic backgrounds and to explore adaptations that can make the intervention more accessible for families from diverse backgrounds.

Enhancing PTR-F for Culturally Diverse Families

The current PTR-F models are limited in terms of structures for building rapport with culturally diverse families and growing understanding of family’s cultural backgrounds. To address these limitations, I propose three ways to enhance the PTR-F’s responsiveness for culturally and linguistically diverse families: Expanding relationship-focused activities, adding a structured step for improving the intervention’s contextual fit, and bringing contextual information.

Relationship-Focused Activities

No meaningful engagement can occur without trust and respect between two parties. Therefore, quality relationship between families and practitioners should be established first for PTR-F to be effective. In PTR-F, collaborative goal-setting, consistent bi-directional communications, acknowledging family strengths and challenges through regular coaching sessions are key factors that support families and practitioners in building trust and respect.

Despite these factors, culturally diverse families with unique values and beliefs may feel hesitant to share their honest thoughts and feelings about the intervention or their child's progress at the beginning of the intervention. Practitioners may also find difficult to be responsive to the family's needs if they lack a thorough understanding of the family's resources, including time and community supports. Without intentional opportunities to focus on building quality relationships, consequently, practitioners may struggle to build trustful and respectful relationship with culturally diverse families. Therefore, PTR-F should guide practitioners to plan and implement more intentional relationship-focused activities throughout the intervention.

Relationship-focused activities can include creating a supportive environment for collaboration. For example, practitioner can invest time and space for introducing their cultural background, how they have worked with families and children, what they value in teaching children social emotional skills, and what approaches they use to support families and children at the beginning of the initial meeting of PTR-F. Sharing this background information can help families feel safe about sharing their unique practices and thoughts as they recognize that the practitioner also comes from a unique cultural background. Additionally, they may feel connected to the practitioner if they find out that they share similar values and approach when it comes to teaching their children. This step of letting families know that they are in a safe and supportive environment sets a foundation for trust, making them comfortably share their thoughts and feelings when they have to discuss sensitive issues later in the intervention (Reedy & McGrath, 2010).

In addition, an activity to learn more comprehensive and in-depth information about the family can help practitioner start building cultural competence in that specific family's culture at the beginning of the intervention. This can involve asking questions about first time when the

parent met their child, what they love about the child the most, what they appreciate about their family, where they were born and grew, and the family's unique tradition or routine. Practitioners can develop personal connections with the family and gain holistic understanding of the family that is foundational to understanding the child through this activity. And developing the ability to understand and engage with the family's unique culture helps practitioners acknowledge and value cultural diversity of families. This practice of honoring cultural diversity, focus on the family strength, and valuing the child can be a foundation for building respect, an essential element of quality relationship (Blue-Banning et al., 2004).

Structured Step for Improving Contextual Fit

Practitioners can also build cultural competence during planning and coaching stages of the PTR-F process. The current PTR-F model relies on each practitioner's discretion for naturally growing cultural competence through organic interactions with families during PTR-F process. Nevertheless, adding a structured step for identifying and leveraging family resources and capacity can make the PTR-F process more culturally responsive. For instance, practitioner and family can examine the contextual fit of the intervention together before implementing the BSP. This can be done by reflecting on several questions from a goodness-of-fit assessment questionnaire (Albin et al., 1996), such as "Does the plan disrupt your family routines?", "How well does the plan fit with your beliefs about raising your child and creating a meaningful family life together?", "Does the plan recognize and build on family strengths?", and "Does the plan make use of resources (e.g., help from a partner or a parent support group) available to you and your family?"

By engaging bidirectional communications about these questions with families, practitioners can better understand the family's values, beliefs, priorities, and tailor the

intervention to fit within the family's cultural context. For example, asking about the plan's fit with the family's daily routines can help practitioners understand how to make the plan more culturally appropriate. Discussion about the plan's recognition of the family's strengths can help practitioners build on the family's cultural assets. Moreover, reflecting on available resources can help practitioners understand the family's social support network and incorporate culturally specific resources into the intervention. Overall, this activity can help practitioners appreciate cultural differences and similarities and effectively interact with families from culturally diverse backgrounds. By incorporating these considerations into the intervention, practitioners can make PTR-F more culturally responsive and promote positive outcomes.

Incorporating Contextual Information

When studying the effectiveness of PTR-F for culturally and linguistically diverse families, it is necessary to consider contextual information. Though identification and implementation of evidence-based practices have improved for the past decade, outcomes of children of color with and without disabilities have been less favorable than those of White peers (National Center for Education Statistics [NCES], 2019; Sullivan et al., 2013). One of the reasons to this issue is that children of color has been historically underrepresented in intervention research yet expected to respond to interventions in a similar way of White peers (Klingner & Boardman, 2011). Researchers need to explore the perspectives of diverse stakeholders to explain why outcomes vary across race, language, gender, and sociocultural contexts. The qualitative research design enables researchers to achieve this purpose by focusing on counternarratives of stakeholders who are often underrepresented in research or neglected in statistical reports (Leko et al., 2022).

To understand whether PTR-F works for children and families from culturally and linguistically diverse backgrounds, therefore, mixed methods research is essential. Mixed methods research is "the type of research in which a researcher or team of researchers combines elements of qualitative and quantitative research approaches for the broad purposes of breath and depth of understanding and corroboration" (Johnson et al., 2007, p.123). However, only few special education researchers have published studies using mixed methods research (Corr et al., 2021). In fact, no PTR-F research has comprehensively assessed sociocultural factors of family and how they affect the effectiveness of PTR-F. To advance knowledge and practice in regard to diversity, equity, and inclusion in the field of special education, it is critical to conduct more mixed methods research studies that focus on the voices of culturally and linguistically underrepresented families and consider cultural nuances (Leko et al., 2022).

Purpose of the Study

In this study, I tried to address the limitations of the existing PTR-F model by enhancing the PTR-F's responsiveness for culturally and linguistically diverse families. The purpose of this study was to examine the effectiveness of PTR-F for culturally and linguistically diverse families and explore the diverse families' experiences and perspectives on the PTR-F process. I used a mixed methods research design to achieve these purposes and address the need for more studies using the mixed methods research design in the special education research. The study involved three research questions: (1) Is there a functional relation between the PTR-F and the parent use of BSP strategies? (2) Is there a functional relation between the parent use of BSP strategies and child challenging behaviors? And (3) how do parents from culturally and linguistically diverse communities perceive the contextual fit of PTR-F process?

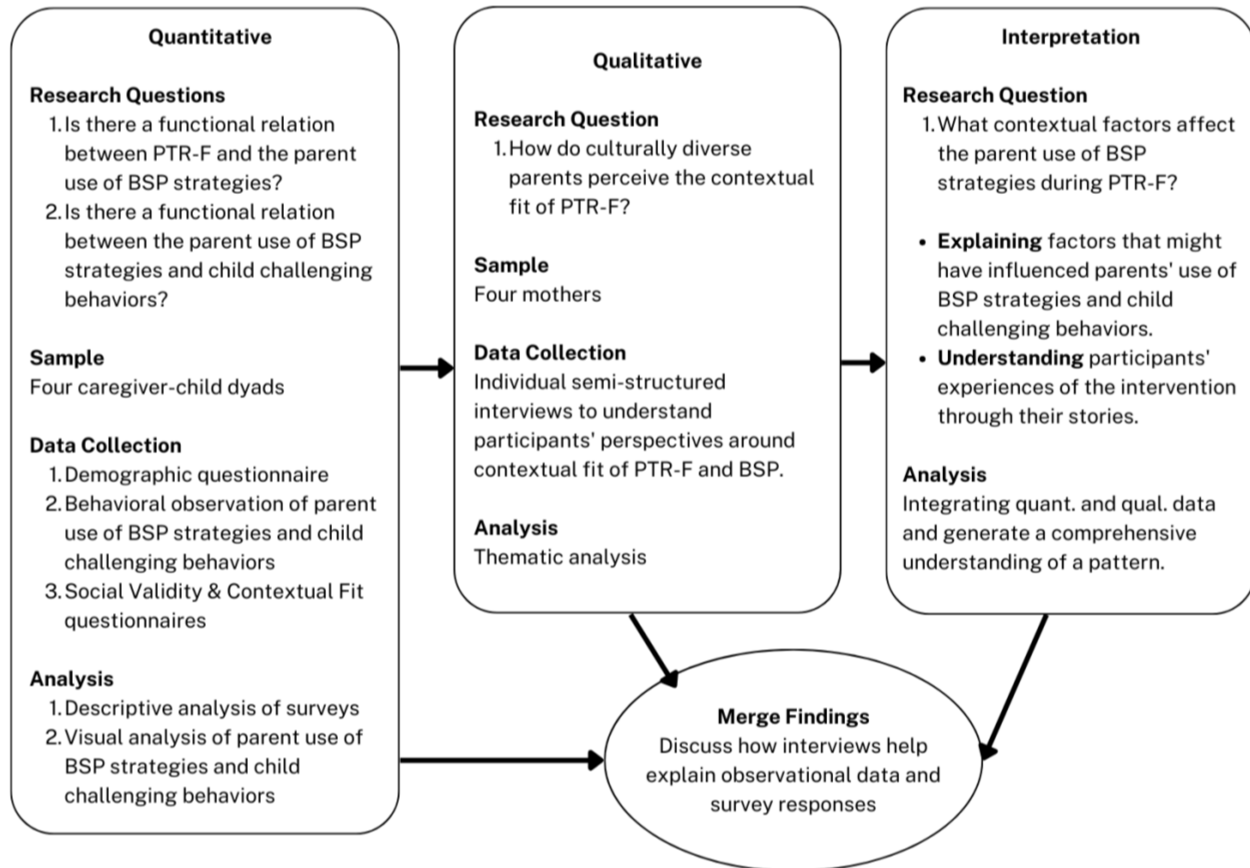
Chapter 3: Methods

Research Design

I used mixed methods research design to explore the research questions above. Mixed methods research is defined by its core characteristics, including collecting and analyzing both qualitative and quantitative data and integrating the two forms of data (Creswell & Clark, 2017). Mixed methods research design fits the purpose of this study as it helps not only identify the functional relation between the intervention and behavioral changes, but also explore contextual information behind the functional relationship (e.g., nuance and context). In the current study, I used an explanatory sequential mixed method design in which a qualitative phase follows a quantitative phase to help explain the quantitative results (Creswell & Clark, 2017). Specifically, my mixed methods involved single case design study followed by qualitative interviews. This design was appropriate to address the proposed research questions as I aimed to examine the effectiveness of an intervention using quantitative data, evaluate the intervention's contextual fit, and then explain the initial results from the quantitative phase (i.e., intervention's effectiveness as well as contextual fit) in depth using the qualitative data (See Figure 1 for a flowchart that illustrates the mixed method design used in this study).

Figure 1

Flowchart for the Explanatory Sequential Mixed Methods Design



Settings and Materials

The study was conducted virtually via Zoom software and video observations. The parent participants selected their target routines in their homes based on the high likelihood of challenging behaviors and the feasibility of recording at the beginning of the study. Example routines they could choose to record included children's play time with siblings or parents, mealtime, getting ready for school, and bedtime routines. They video-recorded parent-child interactions during these routines and uploaded the videos on the individually shared Google Drive folders throughout the study. Researcher provided each parent with a tripod and device mount for tripod, and each parent volunteered to use their personal mobile phone or tablet to

record and upload the videos. The length of each observation for each dyad was about 15 minutes. During the intervention, each parent attended an individual training and weekly coaching sessions via Zoom software. Parent participants chose their convenient locations for Zoom meetings, typically the work room or living room.

After the researcher and each family finalized BSP, the researcher created and provided them with necessary materials, including individualized visual schedules, personalized social stories, communication cards, calm-down strategy cards, token board, tokens, translated version of BSP for school, a visual instruction for a sibling, and more (See Table 1 for a list of materials provided to each family. Individualized visual schedules, tokens, and token boards were decorated using the child's favorite cartoon characters or pictures of the child's face. Personalized social stories and communication cards included the child and the sibling as the main characters in the child's favorite cartoon. The researcher created these materials for each family based on the information the family shared at the end of the third training session. For families with an access to a laminator, the researcher sent the materials in PDF format along with the follow up email after the training session. For a family without an access to a laminator, the researcher prepared the laminated materials and dropped them off at the participant's mailbox. The materials were revised as necessary as parents had a new suggestion.

Table 1

A List of Materials Provided to Each Family

Participants	Materials
Nora and Molly	Personalized token board, tokens (i.e., cat stickers), Calm-down strategy cards, two personalized social stories, timer, and visual schedule.
Destiny and Jake	Personalized token board, personalized tokens (i.e., Picture of Jake's face), communication cards, one personalized social story, visual schedule, and a visual instruction for Jake's sister.
Alice and Mason	Communication cards, one personalized social story, timer, visual schedule, and a visual instruction for Alice (i.e., a flow chart that shows what-to-do depending on Mason's behavior).
Evelyn and Andy	Communication cards, one personalized social story, timer, and visual schedule, and an English version of BSP for Andy's teacher.

Recruitment and Participants

Four parent-child dyads participated in this study. Child inclusion criteria were: (1) chronological age between two and six years, (2) having a diagnosed disability or Individualized Education Plan (IEP)/Individualized Family Service Plan (IFSP), and (3) a report by parent as having challenging behaviors at home. For parents to be eligible to participate, they must (1) identify themselves with culturally and linguistically diverse communities and (2) one of their children must meet the child inclusion criteria. The eligibility information was collected through a screening phone call. Parent-child dyads were ineligible to participate in the study if the target child displayed the following exclusion criteria: (1) display of a severe challenging behavior that

required immediate professional intervention, and (2) participation in other intensive behavioral-based interventions with a specific goal of improving challenging behaviors.

Participants were recruited through purposeful and convenience sampling. I distributed the study information to childcare, public schools, fee-based preschool, early intervention center, community organizations, Children's hospital, autism research centers in Pacific Northwest areas using social media and emails. I also specifically reached out to community organizations whose missions were focused on serving multicultural families with young children with disabilities. If related personnel in a contacted organization agreed to support the study, I asked them to distribute the study information to parents in their organization using their email listserv or program-wide newsletter. The recruitment flyer prompted parents who were interested in promoting their child's social emotional skills and addressing their challenging behaviors to contact the researcher via email, texts, or phone call. I followed each inquiry with a screening phone call to determine the eligibility to participate in the study. All participants must agree to participate in both quantitative and qualitative phases prior to starting the study. The same participants participated in the qualitative interviews. See Table 2 for the participant demographic information.

Table 2

Child and Parent Demographic Information

Child	**Molly**	**Jake**	**Mason**	**Andy**
Age	5	5	5	5
Gender	Female	Male	Male	Male
Race	Multi-racial	Multi-racial	Multi-racial	Asian
Ethnicity	Not Hispanic	Not Hispanic	Prefer not to answer	Not Hispanic
Home language	English	English	English	Korean
Diagnosis	Emotional and social developmental delays, Sensory Processing Disorder	ASD	ASD	ASD
Parent	**Nora**	**Destiny**	**Alice**	**Evelyn**
Age	25-34	35-44	35-44	35-44
Gender	Female	Female	Female	Female

Race	Asian	Asian	Asian	Asian
Ethnicity	Not Hispanic	Not Hispanic	Not Hispanic	Not Hispanic
Country of Origin	Thailand	Kazakhstan	Kazakhstan	South Korea
Years in US	8	6	9	9
Native language	Thai	Russian	Kazakh	Korean
Education	Bachelor’s degree	Doctorate degree	Bachelor’s degree	Master’s degree
Marital Status	Divorced	Married	Married	Married
Employment	Self-employed	Part-time	Self-employed	Unemployed
Annual Income	$25,000-49,999	$50,000-$74,999	Prefer not to say	$150,000 or more

Molly and Nora

Molly was a five-year-old girl diagnosed with developmental delays. Molly attended a kindergarten program at a metropolitan public school where an individually assigned behavior technician supported her throughout the day. According to the parent’s report, however, the behavior technician was not working for a specific goal related to Molly’s challenging behaviors at school. She lived with her father and mother. Molly’s mother, Nora, reported that Molly

showed challenging behaviors daily at school and home. She would show physically aggressive behaviors, such as hitting, pushing, biting, and grabbing peers and adults when she gets upset. She also often engaged in verbal aggressions, including threatening, allegations, and negative self-talks (e.g., "I'm bad, I cannot be better.") or ran away from classroom or home when she was frustrated. Due to these challenges, Molly's teacher and the school administrator suggested Nelly to place Molly in a special education school. Molly had to move to a new school during the baseline condition of this study. Nora reported that the most difficult routine of their day was either during dinner or when Nora tries to leave Molly in her room after wishing her a good night. Nora chose dinner as a target routine at the beginning of the study. Once Nora started video-recording in the first week of baseline, however, Molly's challenging behaviors did not occur during those three days. Per Nora's report that Molly's challenging behavior during dinner time has significantly improved, we changed our target routine to bedtime and re-developed BSPs. So Molly and Nora's target routine occurred in Molly's bedroom at Nora's apartment. Molly usually made persistent and repetitive requests that Nora stays with her until Molly falls asleep. If Nora does not honor this request, Molly would make allegations ("You are a liar"), threaten, ("I'll not kiss or hug you anymore"), and hit, grab, or push Nora.

Nora, the primary parent participant of the research, was born and raised in Thailand and moved to the United States by herself 8 years ago. Molly's father and Nora recently divorced, so Molly spent one week at Nora's place and the other week at the father's place. Nora worked as a fully-time nanny in an urban city in a northwestern state. Nora's native language was Thai, but Nora and Molly spoke English as a primary language at home. Nora chose the bedtime routine as the primary focus of intervention. Nora did not have any training related to PBS prior to the

study, but she heard from other families about "positive discipline" that helps a child understand emotions and does not involve punishments.

Jake and Destiny

Jake was a five-year-old boy diagnosed with ASD. Jake attended a kindergarten program at a suburban public school in a northwestern state. He lived with father, mother, grandfather, and an older sister. According to Jake's mother, Destiny, Jake often engaged in physical aggressions, including punching, kicking, hitting, and grabbing, when he had to transition from a preferred to a non-preferred activity or when he played with his older sister or his father at home. The setting for Jake's family was the play area of the living room in their family home. Destiny reported that the most difficult time of day was after school, especially when Jake and his sister spent their free time in the living room. Destiny shared that Jake would punch or grab his father or sister when they get in his way of playing or when he wants something that his sister plays with. At the start of the study, Destiny chose the play time with the father as a target routine for Jake and developed BSP for this target routine. Nevertheless, she soon realized that it was difficult for Jake's father to routinely play with Jake while she tried to record baseline videos. Therefore, Destiny selected the play time with a sibling as a target routine for Jake and developed a new BSP for the changed target routine.

Destiny was born and raised in Kazakhstan and moved to the United States by herself 6 years ago. She had a part-time job while taking care of children and her father-in-law at home. Danna had a doctoral degree in cognitive psychology and was highly involved in the local parent community of children with ASD. Destiny's native language was Russian, but Jake's family spoke English as a primary language at home. As the primary participant of the research, Destiny chose a play-with-sister routine as the primary focus of intervention. She did not have any

training related to PBS prior to the study, but she had background knowledge about PBS-based strategies that she gathered from seminars on challenging behaviors and applied behavior analysis.

Mason and Alice

Mason was a five-year-old boy diagnosed with ASD. Mason attended a kindergarten program at a suburban public school in a southeastern state. He lived with father, mother, grandmother, and a younger sister. According to Mason's mother, Alice, Mason displayed physical aggressions, such as hitting and pushing his sister, and persistent verbal protests, including crying, whining, and yelling "no" to requests. The setting for Mason and Alice consisted of playroom or living room of the family's home. Alice indicated that play time with Mason's younger sister was the most difficult routine of the day. During play time, Mason often hit or pushed his sister and yelled "no" to his mother's request to be gentle with his sister or to give a turn to his sister. As a consequent, Mason's younger sister had to wear a helmet when they played close to each other. Therefore, Alice selected the play time with a sibling as a target routine for Mason.

Alice was born and raised in Kazakhstan and moved to the United States 9 years ago. Her highest degree in education was bachelor's degree. She was self-employed while taking care of her children at home. Alice's native language was Kazakh, but all family members, except between Alice and her mom, spoke English as a primary language at home. Alice was the primary participant of the research. She chose a play-with-sister routine as the primary focus of the intervention. She had never heard of PBS before the study.

Andy and Evelyn

Andy was a five-year-old boy diagnosed with ASD. Andy attended a university-based inclusive preschool program in a northwestern state. He lived with father, mother, and a younger sister. Andy's mother, Evelyn, reported that Andy often engaged in loud crying or crying-like vocalizations. The setting for Andy and Evelyn was the living room or work room of the family's home. Evelyn shared that the most challenging time of the day was when Andy and his younger sister plays together after coming home from school. According to Evelyn, Andy's sister often interfered Andy's play by taking away a toy, tightly hugging, or intruding his play space. Evelyn reported that Andy's two-year-old sister was too young to learn to suppress her urge to grab an item she liked. As Andy did not know how to self-advocate, Andy cried or made crying-like vocalizations when his sister bothered him, and this challenging behavior could last for a long time unless the parents intervene and calms him down. Therefore, Evelyn selected the play time with a sibling as a target routine for Andy.

Evelyn was born and raised in South Korea and moved to the United States with her husband 9 years ago. Her highest degree in education was master's degree. Evelyn's native language was Korean, and all family members spoke Korean as a primary language at home. She was a stay-at-home mother. As the primary participant, Evelyn chose a play-with-sister routine as the primary focus of the intervention. She had never heard of PBS prior to the study.

Quantitative Phase

Single Case Research Design

The quantitative phase of the study was a nonconcurrent multiple baseline across participants, a design variable of single case research study (Gast et al., 2014). Single-case research design (SCRD) is an experimental research design in which each case (e.g., individual) serves as its own control, dependent variables are measured repeatedly over time across

conditions, and evidence is confirmed through replications (Ledford et al., 2019). As rigor in SCRD does not depend on having randomly assigned groups, I chose SCRD to assess intervention effects for the small sample of cases whose characteristics and contexts vary from one another. I selected a nonconcurrent multiple baseline design for its practical benefits that make its use more appropriate than the concurrent multiple baseline design. With COVID-19's remaining impact, many families were experiencing high levels of stress and financial challenges (Adams et al., 2021). This impact was particularly detrimental for racially diverse families, presenting a barrier to recruiting racially and culturally diverse families (Center for Translational Neuroscience, 2021). Given that parents who were interested in participating in the study were experiencing daily challenging behavior issues and not receiving intensive interventions, it was more appropriate to begin intervention for them as soon as they are ready than waiting to recruit all participants. Additionally, a recent behavior science article that argued that the nonconcurrent multiple baseline design can be rigorous if each tier's baseline phase is different in the number of days and the number of sessions and if phase changes happen with a sufficient lag between each tier (Slocum et al., 2022). Therefore, I used the nonconcurrent multiple baseline design study to examine the effectiveness of the PTR-F on the parent use of behavioral strategies. To make the current study rigorous, I had pre-determined the number of baseline sessions for each tier to represent the staggered start of multiple baselines. Then as I recruited each participant, I randomly assigned them into one of tiers with the staggered length of baseline.

Response Definitions

I collected observational data through video-recordings. Parent participants uploaded video-recordings of 15-minutes interactions with their children during target routine one to three times a week throughout the study. The primary dependent variable in the study was the

percentage of parent implementation fidelity of individual behavior support plan. Secondary dependent variable was the percentage of intervals with challenging behaviors.

Percentage of Parent Implementation Fidelity. Masked observers measured parent implementation fidelity of the Behavior Support Plan (BSP-IF) strategies through video observations. During baseline, intervention, and maintenance conditions, I asked parents to record and share 15-minute videos of parent-child interactions during a target routine two to three times each week. Observers used 1-minute partial interval recording to measure the frequency of positive attention and use of an appropriate new response during or after the challenging behavior. The presence of frequent positive attention was calculated by dividing the number of intervals where the target parent provided the positive attention to the child by the number of total number of intervals. For instance, if the parent provided positive attention for nine out of 15 total intervals, the score for the presence of frequent positive attention would be 0.6. The use of an appropriate new response for the challenging behavior was calculated in the same manner as for the presence of frequent positive attention. If the parent used an appropriate new response for three out of five intervals during which the child engaged in a challenging behavior, the score for the use of an appropriate new response would be 0.6. For other strategies (e.g., use of predictable schedules, clear statement of behavior expectations, establishment of teaching opportunity, and use of reinforcement), observers coded for the presence (1) or absence (0) of strategies for the entire duration of video. The number of implemented strategies would be calculated by adding all the scores for implemented items on each family's individualized BSP. BSP-IF was represented as the percentage of implementation for each session by dividing the number of implemented strategies by the number of total strategies in the individualized BSP and

multiplying it by 100. Strategies in BSPs for each of the participating children are provided in Table 3. See Appendix A for a sample data collection form for BSP-IF.

Table 3

Strategies on the Behavior Support Plans

Child	BSP strategies
Molly	1. Providing high rates of positive attention.
	2. Establishing and maintaining predictable daily schedules (Using visual schedule).
	3. Including consistent patterns of activities.
	4. Explain behavioral expectations (Using a social story).
	5. Using timer for added structure.
	6. Finding moments to teach how to appropriately express emotion ("I am scared") or how to make choices within 1 minute during bed time.
	7. Using prompts ("How are you feeling?" or waiting or hints) to help the child express her emotion or make a choice.
	8. Providing reinforcer (e.g., praise or sticker) when the child appropriately expresses her emotion.
	9. Not paying attention to challenging behavior.
	10. Helping the child once she calms down.
	11. Acknowledging the child's feeling and reminding her expectations after she calms down.
	12. After the child calms down, talking about what she can do instead of saying hurtful things to mom.
Jake	1. Providing high rates of positive attention.

2. Establishing and maintaining predictable daily schedules (Using visual schedule).
3. Including consistent patterns of activities.
4. Explain behavioral expectations (Using a social story).
5. Using timer for added structure.
6. Teaching to appropriately ask for what the child wants during his play with his sister.
7. Providing reinforcer when the child appropriately asks for what the child wants.
8. Ignoring challenging behavior and not giving the child what he wants when he shows challenging behavior.

Mason

1. Providing high rates of positive attention.
2. Establishing and maintaining predictable daily schedules (Using visual schedule).
3. Including consistent patterns of activities.
4. Explain behavioral expectations (Using a social story).
5. Using timer for added structure.
6. Finding moments to teach how to appropriately ask for attention ("Quiet space, please" or "I need help.") during the play time with sister.
7. Using prompts (or waiting or hints) to help the child say "I need help."
8. Providing reinforcer (e.g., Mom taking the sister outside or giving back the toy that the sister took away; praise) when the child appropriately asks for help or attention.
9. Ignoring challenging behavior.

Participant	Strategies
	10. Not taking the sister outside or giving help when the child shows challenging behavior. 11. Helping the child once he calms down. 12. Reminding the child what to do after he calms down.
Andy	1. Providing high rates of positive attention. 2. Establishing and maintaining predictable daily schedules (Using visual schedule). 3. Including consistent patterns of activities. 4. Explain behavioral expectations (Using a social story). 5. Using timer for added structure. 6. Finding moments to teach how to appropriately ask for help (“HELP”) during his play with his sister. 7. Using prompts (or waiting or hints) to help the child say “HELP”. 8. Providing reinforcer (e.g., Descriptive praise and a hug) when the child appropriately asks for help or attention. 9. Not attending to challenging behavior. 10. Reminding the child what to do after he calms down.

Percentage of Intervals with Child Challenging Behavior. Masked observers used the same 15-minute videos to code data on children’s challenging behaviors. Challenging behaviors were defined as any occurrence of contextually inappropriate behavior that parents identified as challenging plus common challenging behaviors that fall into one of the following categories: (1) physical aggression (e.g., Hitting, kicking, punching, spitting, throwing objects forcefully,

pinching, pushing, and biting), (2) running that poses a safety risk for the child and others, (3) tantrum behaviors (e.g., Protesting statements, explicit verbal refusal to follow directions, prolonged crying that is loud or disruptive, kicking, screaming, pushing an object/person, stomping, or head banging, (4) verbal aggression (e.g., yelling, screaming, calling bad names and saying bad words), and (5) other inappropriate behaviors that are hurtful, disruptive, or dangerous to self or others. Unless parents denied struggling from a certain challenging behavior, I included the occurrence of all common challenging behaviors in the challenging behavior coding to capture potential behaviors of concern and new challenging behaviors that children may start engaging in the course of study. Operationalized definitions of challenging behaviors were modified for each child based on parent's idea of challenging behaviors at home. For example, Alice shared that Mason cannot hear what other people says to him if he is concentrating on something. So observers did not code a challenging behavior when Mason did not respond to Alice's request if Alice made the request when Mason was more than five feet away from mom or when he was focusing on a different activity. For Andy, on the other hand, Evelyn wanted to add banging one's head to a soft surface or low-toned whining to the list of challenging behaviors because they are usually the precursors of his full-on crying episode. (See Table 4 for each child's target challenging behaviors). Observers used 10-second partial interval recording to code the presence of child's challenging behaviors during the 15-minute video. Percentage of time child engaged in challenging behaviors was calculated for each observation period by dividing the number of intervals with challenging behaviors by the total number of intervals and multiplying it by 100. See Appendix B for a data collection form for child challenging behaviors.

Table 4

Target Challenging Behaviors

Child	Target challenging behaviors
Molly	Verbal and physical aggression toward others, allegations, elopement
Jake	Verbal and physical aggression toward others
Mason	Verbal and physical aggression toward others
Andy	Crying or whining with a low voice tone (not loud, but repetitive sounds)

Note. See Appendix C for operational definitions of challenging behaviors.

Procedures

After obtaining a verbal consent, I shipped or hand-delivered a study manual and recording equipment to parent participants. Each parent had an initial meeting with me after receiving the manual and the equipment. During this one-hour meeting, I supported parents in identifying target challenging behaviors, target routines, and developing operational definitions of challenging behaviors during this meeting. Parent also answered the questions regarding their perceived level of child challenging behavior, prior knowledge about the positive behavior support approach, and what they would like to gain from the study. At the end of the meeting, I explained how to record videos during their target routines and upload them to UW Google Drive. Each participant received a $15 worth of electronic gift card for uploading every five baseline videos, $20 for attending a series of trainings, and $10 for uploading every three intervention and maintenance videos.

Baseline. I asked the parent participants to engage in typical routine and interactions during baseline sessions. All participants shared 15-minute videos two to three times a week on

an individualized assigned UW Google Drive Folder until the intervention started. Parents did not receive any instructions related to challenging behaviors. I have set the number of baseline sessions for each tier to represent the staggered start of multiple baselines, ranging from three to ten, and randomly assigned them into one of tiers. Observers collected challenging behavior data for the pre-determined number of baseline sessions for each participant unless the data trend seemed highly variable during the pre-determined number of baseline sessions. If the data trend was variable before the phase change, I collected a few more data points until the trend stabilized. Nevertheless, if the participant whose data trend was variable stayed in the baseline longer than 3 weeks after collecting the pre-determined number of baseline videos, I started the intervention condition. The randomization dictated that the following order is the start time of intervention: Nora-Molly, Destiny-Jake, Alice-Mason, and Evelyn-Andy.

Development of BSP through the PTR-F Process. Each participant moved to the intervention condition and started the PTR-F process after uploading the pre-determined number of baseline videos and showed stable challenging behavior data trend. Each parent had three one-hour sessions via Zoom over two to three weeks. Most steps in the PTR-F process were identical to the PTR-F guide (Dunlap et al., 2017). However, I added three new steps to the existing model to enhance its responsiveness for culturally and linguistically diverse families: (1) Introducing practitioner's cultural background, (2) conversation about family's culture and value, and (3) assessment of the BSP's contextual fit. The first session focused on introducing PTR-F process and relationship-building between the parent and the researcher. The session started with the introduction to five steps in PTR-F: (1) PTR-F initiation, including gathering information about the child's challenging behaviors and a home routine that they are most likely to engage in challenging behaviors, (2) functional behavior analysis (FBA) assessment, (3) PTR-F

intervention, including creating an individualized behavior support plan (BSP) and learning universal and selected behavioral strategies, (4) coaching, and (5) monitoring the BSP implementation and child challenging behaviors after coaching ends. Then, the introduction of researcher followed the PTR-F introduction. This was the first modification I made for enhancing PTR-F's culturally responsivity by incorporating more relationship-focused activities. I briefly described my immigration history, cultural backgrounds, how I started my career in special education, my career backgrounds, what I like about supporting families and children with disabilities, what approaches I use when I work with families and children and what I would like to learn through this study.

After introducing myself, I started the second relationship-focused activity that I added to the existing PTR-F model. I spent about 30 minutes to learn more about the family's culture and value and build personal connections with participants. I asked parents questions on the following topics: (1) their immigration history, (2) cultural background, (3) first time they met their target child, (4) what they love about the family and the child, (5) what they value as they educate their children and how it compares to how they grew up as a child, and (6) unique family traditions and routines. and (7) long-term and short-term goals.

The second session consisted of goal setting and a functional behavior assessment (FBA). I asked parents to share a big picture goal for their child, such as what they would like to see their child doing in school in three years or what they would expect their child to be able to do for themselves when they are eight years old. Next, parents considered short-term goals. They discussed the most serious challenging behaviors at home, desirable behaviors they would like to see the child doing, and the challenging and desirable behaviors that are the highest priorities to focus on during the intervention. I recorded each participant's short-term goals on a PTR-F goal

sheet (Dunlap et al., 2017; See Appendix D) and shared with them after the session. During the latter part of the second session, parents completed PTR-F assessment checklists (Dunlap et al., 2017; See Appendix E) to conduct a functional behavior assessment. I then summarized the checklists and supported parents in developing hypothesis statements about the challenging behavior's function. Using the hypothesis statements, I explained to parents what could trigger their child's challenging behavior, what could be maintaining the behavior, and how their child could use the challenging behaviors to access or avoid something (i.e., function of challenging behavior).

Parents then decided on a target positive behavior to teach during the intervention by picking one desirable behavior from their short-term goals and reflecting on its fit with the hypothesis statement. I also helped them define the positive behavior in a measurable and observable way and recorded it on the goal sheet and the PTR-F assessment summary table (Dunlap et al., 2017; See Appendix F). Finally, I assured via email that each participant understood and agreed with the assessment results and hypothesis statement by asking their feedback on the finalized PTR-F assessment summary table before holding the third session.

In the third session, parents and I developed individualized BSPs based on the FBA and the hypothesized function of the behavior. I introduced a menu of evidence-based strategies for preventing challenging behaviors, teaching replacement behaviors, and reinforcing replacement behaviors. I provided a didactic instruction on each strategy in the menu. Based on this instruction and with my guidance, parents selected at least one strategy for each of the prevent, teach, and reinforce categories, which added up to eight to ten total strategies that are appropriate to address the hypothesized behavior function. I then created a BSP using the selected strategies (honoring parental choices of strategies). Each BSP specified the goals they would like to work

on, evidence-based strategies to prevent, teach, and reinforce, routines to implement them, and materials needed for implementing the strategies (See Appendix G for an example BSP).

Before finalizing BSP, I implemented a step where parents evaluated the contextual fit of the BSP. This was the third new step I added to the exiting PTR-F model to better support culturally and linguistically diverse families. At the end of the third training session, I asked parents a set of questions regarding how the strategies in their BSP align with their parenting philosophies, cultural value or practices, and the family's strengths and resources and helped them tailor the strategies to accommodate their unique context (See Table 5 for a list of contextual fit questions). If a parent found a part of BSP not contextually fit or not supportive of their family practice while answering the questions, she and I discussed ways to make that part more contextually fit. For instance, Evelyn noted during this step that their BSP plan could use more of resources available to her family, such as help from her husband and help from Andy's teacher. In response, I revised the BSP so that it clearly indicates her husband's role during the target routine. I also made a BSP summary in English version (Evelyn's BSP was in Korean) so that she can share with Andy's preschool teacher what he is practicing at home. If parents were satisfied with their BSP's contextual fit while answering the contextual fit questions, parents and I determined that the BSP was ready to be used. After finalizing the BSP, the researcher created and provided them with necessary materials, including visual schedules, personalized social stories, communication cards, calm-down strategy cards, token board, tokens, and more (See Table 1 for a list of materials provided to each family. Parents tried the BSP and asked questions for a week after the third session. They were asked not to send videos during this practice week.

Table 5

A List of Contextual Fit Questions

Contextual Fit Questions
1. Does the plan address your highest priority goals?
2. Do you understand what you are expected to do as part of the plan? Are you comfortable with what you are expected to do?
3. Does the plan disrupt family routines to a point that it causes stress?
4. Does the plan support your needs as mother?
5. How does the plan fit with the daily routines of your family?
6. How well does the plan fit with your beliefs about raising your child and creating a meaningful family life together?
7. Does the plan recognize and build on your family strengths? Does the plan include successful strategies you have used?
8. Does the plan make use of resources (e.g., help from a partner, parent support group, etc.) available to you and your family?
9. All things considered, how difficult will it be for you to implement this plan?

Intervention condition. Parents participated in their first weekly coaching a week after the last training session. Each coaching session occurred for 30 minutes via Zoom. Zoom coaching sessions followed the large structure of practice-based coaching (PBC) model (National Center on Early Childhood Development, Teaching and Learning [NCECDTL], 2023). PBC is an evidence-based coaching model that includes three key components, including planning goals and action steps, engaging in focused observation, and reflecting on and sharing feedback about

teaching practices (NCECDTL, 2023). Before the coaching session began, I watched the parent's videos and marked times for supportive and constructive feedback.

Each coaching session lasted approximately 30 minutes. First, I spent about five minutes to check in with the parent about the family's well-being in general and family events in the past week. Second, I asked the parent about the progress of BSP implementation and child challenging behaviors at home. We used anecdotal data or quantitative data that parents collected at home to review progress. Parents usually shared their successes and challenges during this step. We engaged in problem-solving discussion for any challenge with implementing a step in BSP and rehearsed the solution if needed. This step lasted approximately 10 to 15 minutes. Parents usually brought issues that I noted from the video observation, so the provision of constructive feedback happened organically during this step. Third, parent and I engaged in focused observation by watching the video with marked times. I provided positive feedbacks about the parent's use of BSP strategies that appeared in the video and prompted them to reflect on a room for improvement about what they saw in the video. This step occurred for about 10 minutes. Next, I went through a list of action steps for the following week based on the previous steps and answered any remaining questions, which lasted for five minutes. Lastly, after each coaching session I sent the parent a follow-up email that summarized what we discussed during the coaching session, listed action steps in bullet points, and included other resources that the parent needed.

I began collecting data on the parent implementation fidelity of their BSP and child's challenging behaviors once the weekly coaching session started for each parent. I collected at least five data points for each dyad's intervention condition, but the number of data points collected varied based on each parent's data pattern. Weekly coaching and data collection in the

intervention condition continued until parents achieved 90% fidelity for at least 3 consecutive sessions or when the parents did not show 90% fidelity within a 12-week period.

Maintenance. Maintenance condition started one week after the coaching condition ended and lasted for two weeks. I asked parents to continue implementing the BSP and record the target routine but did not provide coaching. I continued collecting data on parent implementation fidelity of BSP and child challenging behaviors. The post-intervention survey was also collected in the first week of maintenance condition.

Data Analysis

All videos were coded by research assistants who were masked to conditions of the study. After videos were coded, I graphed the observational data on parents' implementation fidelity of BSP and child challenging behaviors. In single case design research, visual analysis of the graph is a key standard for measuring the effects of the intervention. Therefore, I used visual analysis to examine whether there is a functional relationship (1) between the PTR-F process and the parent implementation of BSP and (2) between the parent implementation of BSP and child challenging behaviors. The graphed data was assessed using the What Works Clearinghouse (WWC) evidence criteria (WWC, 2022). That is, the following characteristics of the graph were evaluated to examine the strength, consistency, and significance of the evidence: (1) consistency of changes in level, trend, and variability within and across each condition and participant, (2) consistency of data and presence of overlap across conditions and participants, (3) projected patterns of data, and (4) variabilities within the data (WWC, 2022). This visual analysis helped me answer two quantitative research questions on whether PTR-F was effective at improving parent implementation of BSP and child challenging behaviors.

Quantitative data collected via surveys were analyzed using the Microsoft Excel software to produce descriptive statistics.

Quantitative Data Collector Training. I trained five research assistants to code videos that parents record at home before quantitative data collection started. All research assistants identified themselves as Asian, bilingual, had master's or doctorate degrees in special education. Three of them were a Board-Certified Behavior Analyst, and two of them worked as special education teachers before entering the graduate program. All of them had worked in homes and schools for at least two years. Research assistants coded data for two observational measures: (1) parent fidelity of BSP strategies and (2) child challenging behaviors. Research assistants conducting observational coding were masked to study conditions and phases.

Training for observation of parent fidelity and child challenging behaviors used video clips collected from baseline phase data and other projects where the participants agreed on the use of their videos for research purposes. Research assistants were trained until they had at least three videos with 90% agreement on each measure before beginning data collection. I conducted the training with each research assistant using the following steps: (1) the research assistant read the code book with response definitions and data collection tables, (2) I reviewed the codebook with the research assistant and provided an overview of data collection procedures, (3) I and research assistant simultaneously yet separately watched a video clip, practiced coding, and discussed coding disagreements, and (4) I and research assistant coded additional practice videos compared codes, and continued coding until they reached 90% agreement on three video clips. Each research assistant began data collection of submitted videos once they reached agreement with me. The same steps were completed for both parent fidelity and child challenging behavior observations.

Four research assistants served as a primary observer for one family and a secondary observer for another family. One research assistant only served as a secondary observer for one family. Each observer was randomly assigned with a family, except one Korean-speaking observer who coded Evelyn's family whose primary language at home was Korean. Researcher served as a secondary observer for Evelyn's family. I randomly selected baseline sessions for reliability coding based on each participant's pre-determined number of baseline sessions and assigned them to each family's secondary observer. Similarly, I pre-selected intervention session videos for reliability coding for every three videos and assigned to each family's secondary observer.

Interobserver Agreement (IOA). I collected IOA for at least 33% of all videos for each dyad in each condition. Five independent observers scored a different family's observational data. All observers remained masked to the condition changes. I used the primary observer's scores for condition change decisions for each family. Secondary data of each family was scored by randomly selected secondary observers. All observers started coding after they reached 90% of agreement for all measures with 15-minute training videos. If an agreement level fell below 80% during the study, the primary and secondary observers were re-trained until IOA reached 90% and started coding again.

Social Validity. I measured family's perception of the PTR-F in two ways. First, I asked all parents to complete online surveys after the intervention. The post-intervention survey included 36 questions regarding the PTR-F process's social validity and contextual fit. The social validity questionnaires were adapted from the Treatment Acceptability Rating From-Revised (TARF-R; Carter & Weeler, 2019). The purpose of this questionnaire was to assess family's perceptions of the PTR-F process in relation to the following aspects: (1) parent's satisfaction

with changes in their child's behavior and the family's overall quality of life (i.e., social validity), (2) family's perception of the time and effort required for the PTR-F process, (3) family's willingness to participate in the PTR-F process again, and (4) parent's expectation for durability of the PTR-F process's impact. The social validity questionnaires consisted of 19 questions in a 6-point Likert scale format. Responses were scored on a scale of 1 (Strongly disagree) to 6 (Strongly agree). Items on the social validity questionnaire included, "I am willing to carry out the PTR-F process again" and "The time and effort required for the PTR-F process were reasonable."

The post-intervention survey also included questions regarding PTR-F process's contextual fit. The contextual fit questionnaire was modified from the "goodness-of-fit" measure (Dunlap, et al., 2006) The purpose of this questionnaire was to assess the extent to which the PTR-F process and individualized BSPs aligned with the family contexts. The contextual fit questionnaire consisted of 17 questions in a 6-point Likert scale format. Responses were scroed on a scale of 1 (Not at all) to 6 (Very well). Items on the contextual fit questionnaire included, "Did the behavior support plan recognize the needs of other family members living at home?" and "Did the behavior support plan recognize and build on your family's strengths?" (See Appendix H for the post-intervention survey questions.)

Procedural Fidelity (PF). I recorded two types of PF in the study. First, five independent observers used PTR-F Procedural fidelity (PTR-F PF) checklist for 33% of initial meeting, training, and coaching sessions with parents to document the PF of all conditions (See Appendix I for the PTR-F PF checklist). I developed the checklist using PTR-F Self Evaluation Checklist (Dunlap et al., 2017) and included steps that the researcher should perform in different conditions. I provided each observer with a randomly selected initial meeting, training, and

coaching videos for PTR-PF coding. Observers were also given materials that were associated with each session, including BSP summary, behavioral assessment checklists, and coaching logs with follow-up emails. The Korean-speaking observer coded PTR-PF for Evelyn's family because I used Korean during meetings with them. Observers completed a checklist for each initial meeting, training, and coaching session using the video and corresponding materials. A PTR-F PF score was obtained for each session with parent by dividing the total number of completed steps by the total number of planned steps and multiplying the answer by 100. I also calculated IOA for 33% of PTR-F PF data using the procedures described in the "Interobserver agreement" section above. Second, five independent observers coded parent implementation fidelity of BSP (BSP-IF) using the Parent Behavior Data Collection form (See Appendix A). They recorded presence or absence of each parent's BSP strategies for each video that parent sent. I described the process of collecting BSP-IF data in the "Response Definitions" section. I calculated IOA for 33% of BSP-IF data using the same procedures in the "interobserver agreement" section.

Qualitative Phase

All participants participated in an individual interview after the intervention ended. The purpose of the qualitative phase within an explanatory sequential mixed methods design was to explain the unique patterns in quantitative data and to acquire an in-depth understanding of parents' experiences while participating in the PTR-F process. I used gold standard qualitative procedures outlined by Brantlinger and colleagues (2005) to ensure the rigor of the research throughout the qualitative phase. During the interview, parents answered questions related to critical components of the PTR-F in enhancing their children's social emotional development and the intervention's relevancy to the family's sociocultural context.

Interview Procedure

I developed an interview protocol for each parent participant based on their results from the single case design study. I used a qualitative research methodology textbook (Merriam &Tisdell, 2016), a peer-reviewed article that used qualitative methodological approaches (Mackie et al., 2020), and consultations with a special education qualitative researcher to ensure the rigor of the interview protocol and the process. I was not able to pilot test the protocol with a parent who met the inclusion criteria of the study and did not participate in the study because the interview questions asked parents' experiences that are specifically related to the PTR-F process. Nevertheless, to improve the thoroughness and relevance of the interview questions, I performed an iterative revision process during which I revised the protocol based on feedback from a special education researcher who had experience providing parent-mediated interventions and had experience conducting qualitative interviews.

Each individual interview consisted of approximately 10 open-ended questions and prompts. All interview protocols included a beginning script outlining the purpose of the interview and consenting procedure for recording the interview, yet the order or wordings of questions or follow-up questions changed based on the participant's answer during the interview. Parent participants answered questions related to (1) critical components of the PTR-F process in achieving the short-term goal for their children, (2) perceived benefits and limitations of the PTR-F in learning strategies to promote children's social emotional development and addressing challenging behaviors, (3) perceived relevancy of their BSP to the family's sociocultural context, (4) how their sociocultural backgrounds intersected with the PTR-F process in creating contextually meaningful behavior support plans for the child, and (5) what might have caused them to show the unique patterns in their quantitative data (See Appendix J for interview

protocols used for each participant). Participants received the interview questions via email 24 hours prior to the interview and had time to reflect on questions. Parent participants engaged in a semi-structured remote interview via Zoom software within one week after they submitted their last observation video for the maintenance condition. Each interview lasted approximately 60 minutes and ended with words of appreciation for their time and commitment throughout the study. Each participant received an electronic gift card ($20) for interview completion. I recorded each interview using Zoom software's audio-recording function and sent the audio files for professional transcription services. I reviewed the accuracy of transcribed interviews before starting the data analysis.

Data Analysis

Qualitative data analysis occurred simultaneously with the data collection process. I used a content analysis and the constant comparative method of data analysis to explore the parents' perspectives on the cultural adaptability and fit of the PTR-F process (Glaser & Strauss, 1967, as cited in Merriam & Tisdell, 2016, p. 201). I first started open coding process by reading the transcript of the first interview and making notes (i.e., codes) relevant to the research questions next to parts of data. After laying out all the coded data and examining them with equal weight, I grouped the codes into several categories or themes and named each category (i.e., analytical coding; Charmaz, 2014, as cited in Merriam & Tisdell, 2016, p. 206). Conducting this process for the first set of data yielded a preliminary list of themes. I created a codebook based on this preliminary list, interview protocol, and the research questions about the PTR-F's contextual fit.

To ensure trustworthiness and subjectivity of the findings, I dual-coded 75% of interview transcripts with an independent coder who had participated in the qualitative research (i.e., investigator triangulation). I single-coded one interview transcript in Korean because a Korean-

speaking qualitative coder was not available. I and the independent coder discussed and resolved any disagreements of codes for the first set of data and refined the codebook to strengthen the definition of each code. Based on the draft version of codebook, the independent coder and I separately coded the second set of data to assess the agreement level. Then the coder and I discussed final disagreements, refined categories by renaming them or creating subcategories and recorded final codes and definitions in the codebook. The team coded the remaining two sets of data using the finalized codebook and compared all coded data afterwards. As the goal of the qualitative data analysis was to reach consensus rather than to quantitatively measure inter-rater agreement, all coders engaged in intensive discussions to achieve consensus of coded data throughout this process (Harry et al., 2005). Though the subsequent discussions did not add changes to the final codebook, they added clarifications to the codebook. I used Dedoose Version 9.0.90, a qualitative method software program, and Delvetool.com, a qualitative data analysis software, to analyze the interview transcripts. Additionally, I performed member checks by sending transcripts and coded analysis to participants and asking for their feedback on the accuracy of transcripts and analysis.

Mixed Method Data Analysis. To explore the components of the PTR-F process that were critical for each participant's observed outcome, I categorized participants into two groups based on their results from the single case design study when interpreting the qualitative data. One group involved participants who demonstrated consistent improvements in parent implementation of BSP and child challenging behaviors. The other group involved participants who showed variable improvement in both measures. By comparing and contrasting the patterns demonstrated by the two groups, I tried to identify components of the intervention that might have served significant roles for positive outcomes. I aimed to unwrap specific challenges that

participants with variable results experienced and reflect on its implications for practices and future research through this data integration approach.

Positionality Statement

As a foreigner, bilingual, person of color, and transitory immigrant, my personal experiences and cultural background shaped my positionality in this qualitative research. My personal experiences as a transitory immigrant provided me with a unique perspective on the issues being explored in this study and helped me understand the challenges and opportunities that come with navigating multiple cultural contexts. My bilingualism could have been an asset in communicating with participants who speak a language other than English. As a doctoral student pursuing a PhD in special education and a former special educator, additionally, my background in special education informed my understanding of the positive behavior intervention and support (PBIS) approach embedded in the PTR-F process and its implications for diverse families. I also acknowledge that my positionality as a researcher might have influenced the way I collected and interpreted the data. I recognize that my positionality as well as my academic and professional background influenced my approach to this study. Thus, I tried to be mindful and reflective of the potential impact of biases on the research findings throughout this study. My goal in this qualitative study is to provide an accurate and insightful story of diverse parents' experiences with the PTR-F process by acknowledging and minimizing the impact of my biases.

Chapter 4: Results

The aim of this study was to improve the responsiveness of the PTR-F model for families that are culturally and linguistically diverse. The study investigated the effectiveness of the PTR-F model for CLD families and their experiences with the PTR-F process. The study focused on three research questions: (1) Is there a functional relation between the PTR-F and the parent use of BSP strategies? (2) Is there a functional relation between the parent use of BSP strategies and child challenging behaviors? And (3) how do parents from culturally and linguistically diverse communities perceive the contextual fit of the PTR-F process? I used a mixed methods research design to explore these questions.

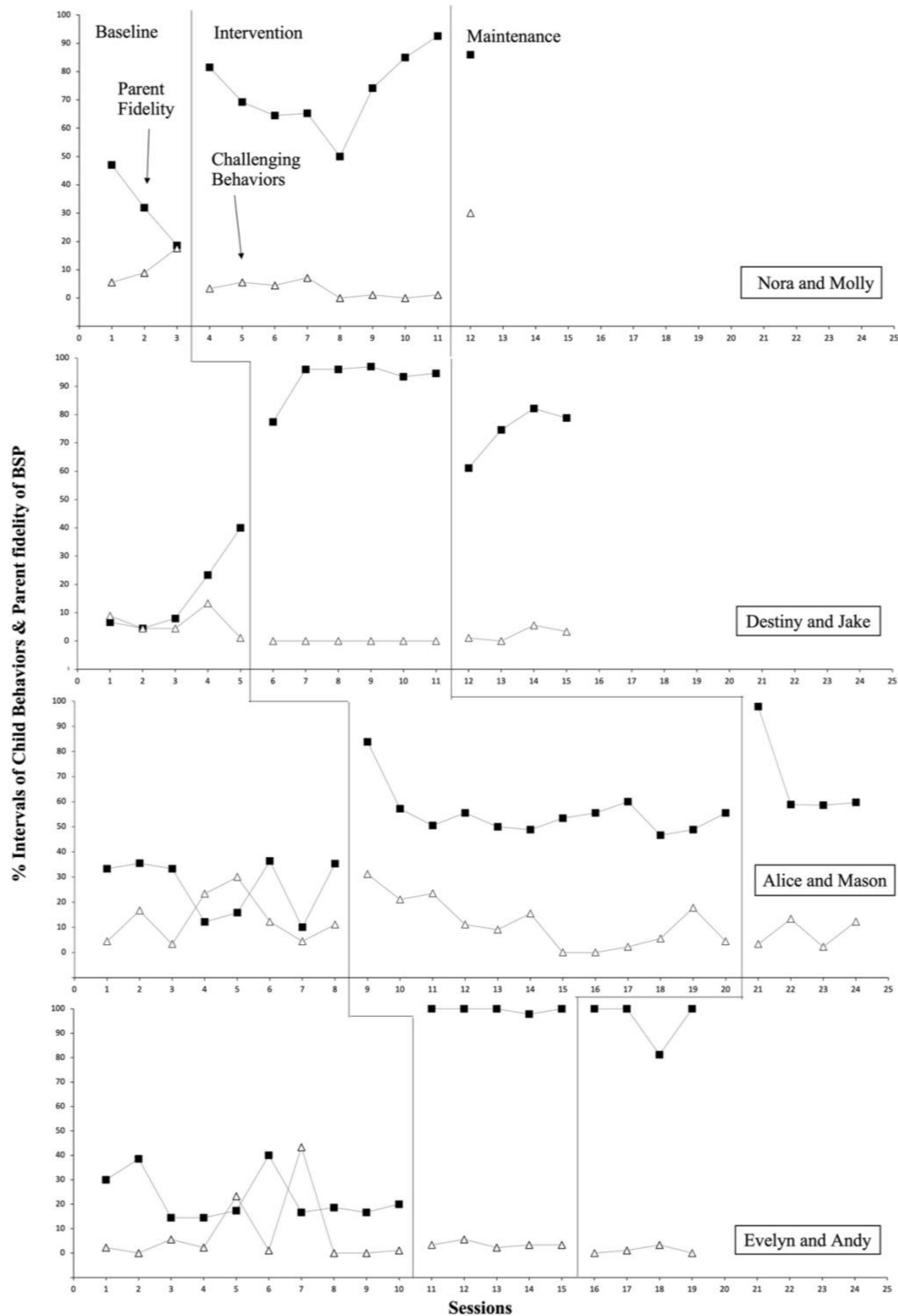
I present quantitative results first, then follow with qualitative and mixed methods results. I describe parent implementation fidelity with the percentage of strategies that parents used from their individualized BSP during a selected routine at home. Child challenging behavior is described with the percentage of time that children engaged in challenging behaviors during a selected routine at home. I use qualitative findings to explain quantitative results by reporting data that represents the parent's experiences and perceptions of the PTR-F process. Mixed methods result at the end will integrate quantitative and qualitative results broadly and for both each dyad.

Quantitative Findings

Quantitative data focuses on two dependent variables: (1) parent implementation fidelity (as demonstrated by their use of BSP strategies) and (2) child challenging behavior (as demonstrated by the occurrence of challenging behaviors).

Figure 2

Percentage of Each Parent's Use of BSP Strategies and Percentage of Intervals with Challenging Behaviors across Sessions



Parent Implementation Fidelity

Data for parent implementation fidelity represented parent's use of PBS-based strategies listed in their individualized BSP during a selected routine at home. Parent implementation fidelity was the primary dependent variable for this study. Figure 2 shows the percentage of each parent's use of BSP strategies across sessions.

Nora. Nora used less than 50% of her BSP strategies in the initial baseline session with a decreasing trend of implementation fidelity (range = 18.56% - 47%). She was randomized to receive intervention first; thus after three baseline sessions in which she had a decreasing trend in strategy use, she started her intervention phase. Nora's trend of implementation fidelity was variable throughout the intervention condition. After introduction of PTR-F intervention, her implementation fidelity immediately increased to 55.56% in the first intervention session. However, Nora's implementation fidelity started a decreasing trend after the first intervention session. After the fifth intervention session, her implementation fidelity started an increasing trend and reached 92.56% in her eighth intervention session. Though Nora's implementation fidelity varied in the intervention condition, her level of implementation fidelity during the intervention condition remained higher than her level of implementation during the baseline condition. She consistently used more than 50% of her BSP strategies in the intervention condition, except for the sixth session where she used 43.67% of BSP strategies (range = 43.67% - 94.11%). This was the only point of overlap with the baseline condition.

Destiny. Destiny used 6.67% of her BSP strategies in the initial baseline session. She showed an increasing trend of implementation fidelity in the baseline condition, but her implementation fidelity remained below 50% (range = 6.67% - 40%). Destiny was randomized to be in the second tier of baselines; thus she started her intervention phase after five baseline

sessions. Her implementation fidelity immediately increased to 77.4% in the first intervention session. Her implementation fidelity reached 96% in the second intervention and remained above 90% for the remainder of intervention sessions. (range = 77.4% - 97%). Overall, Destiny's level of implementation fidelity during the intervention condition than her level during the baseline condition. There was no overlap of data point between the two conditions.

Alice. Alice used 33.33% of her BSP strategies in the initial baseline session. Though her use of BSP strategies varied, she consistently used less than 40% of her BSP strategies throughout the baseline condition (range = 10% - 36.33%). Alice was randomized to be in the third tier of baselines; thus she started her intervention phase after eight baseline sessions. Her implementation fidelity immediately increased to 83.78% in the first intervention session. Alice's implementation fidelity decreased to 57.17% in the second intervention session and stayed below 60% for the remainder of the intervention condition. Nevertheless, her level of implementation fidelity during the intervention did not overlap with that of the baseline condition at all (range: 46.67% - 83.78%).

Evelyn. Evelyn used 30% of her BSP strategies in the initial baseline session. Her use of BSP strategies somewhat varied, yet consistently stayed below 40% (range = 14.44% - 38.6%). Evelyn was randomized to be in the last tier of baselines; thus She started her intervention phase after ten baseline sessions. Evelyn showed an immediate increase in her implementation fidelity in the first intervention session. Her implementation fidelity reached 100% and showed a stable trend throughout the intervention condition, except during the fourth intervention session where she used 97.83% of her BSP strategies. Evelyn's level of implementation fidelity during the intervention condition remained significantly higher than during the baseline condition without any overlap with the baseline condition (range = 97.83% - 100%).

Child Challenging Behavior

Data for child challenging behavior represented the occurrence of children's challenging behaviors during a selected routine at home (See Appendix C for a list of challenging behaviors). Child challenging behavior was the secondary dependent variable for this study. The percentage of intervals with challenging behavior for each child across sessions is shown in Figure 2.

Molly. During the baseline condition, Molly showed a relatively low level of challenging behavior (range = 5.56% - 17.65%). Her percentage of challenging behavior during baseline demonstrated a stable and increasing trend. Molly's challenging behavior immediately decreased when the intervention started (range = 0% - 7.14%). Her intervention data showed a low variability with a slightly decreasing trend. Overall, Molly's level of challenging behavior became lower in the intervention condition than in the baseline condition with few overlaps. There were two points of overlap at the second (5.56%) and the fourth intervention session (7.14%).

Jake. Jake also showed a relatively low level of challenging behavior during the baseline condition (range = 1.11% - 13.33%). Variability in his baseline data was due to one session during which he engaged in 13.33% challenging behaviors. Excluding this session, Jake's percentage of challenging behavior during baseline was stable and demonstrated a decreasing trend. When intervention began, Jake's challenging behavior immediately decreased to and stayed at 0% throughout intervention sessions (range = 0% - 0%). Intervention data showed no variability with a low, stable trend. Overall, Jake's percentage of challenging behavior decreased in the intervention condition compared to the baseline condition with no overlap.

Mason. During the baseline condition, Mason's showed a moderate level of challenging behavior (range = 3.33% - 23.33%). His percentage of challenging behavior during baseline was

highly variable with a slightly increasing trend. Mason's challenging behavior increased to 31.15% when the intervention started (range. = 0% - 31.15%). However, his intervention data soon showed a decreasing trend with some variability at the end of the intervention condition. 58.33% of intervention data points overlapped with the baseline data points. The overall level of Mason's challenge behavior was slightly lower in the intervention condition than in the baseline condition.

Andy. Andy showed a relatively low level of challenging behavior during the baseline (range = 0% - 43.33%). He showed some variability during two baseline sessions where he engaged in 23.33% and 43.33% challenging behavior. For most baseline sessions, however, Andy's percentage of challenging behavior was below 6% and demonstrated a low with a slightly increasing trend. Andy's challenging behavior slightly increased during the initial intervention session. Though all intervention data points overlapped with baseline data points, all data points stayed below 6% with minimal variability (range = 2.22% - 5.56%). In general, the level of Andy's percentage of challenging behavior was slightly lower in the intervention condition compared to the baseline condition.

Maintenance

Participants who reached the pre-determined mastery criterion level of BSP implementation fidelity during intervention conditions stopped participating in coaching. Alice did not reach the mastery criterion, but moved to the maintenance condition because her data maintained the similar level for two months and she was satisfied with the child's progress. Nora, who also did not reach the mastery criterion, wanted to begin the maintenance condition when I asked her preference about continuing the coaching after one month of intervention. All participants started the maintenance condition two weeks after their last coaching session.

Participants uploaded two to three videos per week for up to two weeks during the maintenance condition. During the maintenance condition, participants did not participate in coaching or receive feedback via email. Figure 2 shows each participant dyad's BSP implementation fidelity and challenging behavior during maintenance sessions.

Implementation Fidelity. Nora's BSP implementation fidelity dropped to under 90% two weeks after the last coaching session. However, her implementation fidelity stayed at the intervention level during the maintenance sessions. Destiny's BSP implementation fidelity dropped from over 90% to under 70% two weeks after the last coaching session ended. However, her BSP implementation fidelity showed an increasing trend over two weeks. Additionally, Destiny's level of BSP implementation fidelity during the maintenance condition remained above the level of the baseline condition (range = 61.17% - 78.83%). Alice's BSP implementation fidelity reached 90% in her first maintenance session, which was well above her average fidelity level of the intervention condition. Nevertheless, her implementation fidelity decreased back and stayed at around 60%, her average fidelity level of the intervention condition. Similar to Destiny, Alice's BSP implementation fidelity also remained above the level of the baseline condition (range = 58.6% - 97.83%). Evelyn's BSP implementation fidelity mostly stayed at the intervention level during the maintenance sessions. It decreased to below 90% in the third maintenance session but increased back to 100% in the fourth maintenance session (range = 81.17% - 100%). Overall, most participant's BSP implementation fidelity during the maintenance sessions stayed higher than their baseline levels, if not at their intervention levels.

Challenging Behavior. Molly's challenging behavior noticeably increased during the maintenance sessions. Jake's challenging behavior level slightly increased during the

maintenance sessions compared to his intervention level challenging behavior (range = 0% - 5.56%). Nevertheless, his challenging behavior level during the maintenance sessions remained lower than his baseline level challenging behavior. Mason's challenging behaviors during maintenance sessions were variable, but slightly lower than the baseline level challenging behaviors and generally stayed close to the intervention level (range = 2.22% - 13.33%). Andy's challenging behavior during the maintenance sessions was similar to the intervention level and lower than the baseline level (range = 0% - 3.33%). Overall, most child participant's challenging behaviors during the maintenance sessions were similar to or lower than their intervention levels.

Overall, all parent participants showed noticeable changes in their levels of implementation fidelity immediately following the phase change. Though there were some variabilities in Nora and Alice's levels of implementation fidelity, they also had minimal overlaps between their baseline and intervention levels. Therefore, visual analysis of parent implementation fidelity of BSP indicates that the PTR-F process is functionally related to the parent use of BSP strategies. In terms of child challenging behavior, all child participants showed slight decreases in their levels of challenging behaviors. Though Molly's and Jake's challenging behavior levels marginally decreased in the intervention condition compared to the baseline condition, they had minimal overlaps between their baseline and intervention levels. Mason's and Andy's challenging behavior data in the intervention condition largely overlapped with their challenging behavior data in the baseline condition. Nevertheless, their levels in the intervention condition slightly decreased compared to the baseline condition. Thus, visual analysis of child challenging behavior supports with some reservation that the parent use of BSP strategies is functionally related to child challenging behaviors.

Interobserver Agreement

For parent implementation fidelity, the mean occurrence IOA for all parents across all conditions was 93% (range = 85.29% - 100%). See Table 6 for IOA for each parent participant across conditions. For child challenging behavior, the mean occurrence IOA for all children across all conditions was 94.69% (range = 86.67% - 100%). See Table 7 for IOA for each child participant across conditions.

Table 6

Mean Occurrence IOA of Parent Implementation Fidelity in Percentage (%)

	Baseline	**Intervention**	**Maintenance**	**Total IOA**
Nora	90	89.78	95.34	91.71
Destiny	98.53	98.53	89.71	95.59
Alice	93.17	93.39	91.18	92.58
Evelyn	91.94	94.32	90.11	92.12
Total IOA	93.41	94.01	91.585	93

Table 7

Mean Occurrence IOA of Child Challenging Behavior in Percentage (%)

	Baseline	Intervention	Maintenance	Total IOA
Molly	85.88	90.74	94.12	90.25
Jake	87.22	100	98.34	95.19
Mason	96.67	95.82	97.23	96.57
Andy	97.45	98.55	94.31	96.77
Total IOA	91.81	96.28	96	94.69

Training and Coaching Fidelity

Procedural fidelity for 30% of baseline and intervention sessions was 99.12%. That is, the researcher followed 100% of planned procedures during baseline conditions and did not implement the intervention. The researcher implemented the intervention with 98.61% accuracy during training sessions. The researcher also implemented the intervention with 98.75% accuracy during coaching sessions. See Table 8 for procedural fidelity for each family across conditions.

Table 8

Procedural Fidelity in Percentage (%)

	Initial Meeting	Training	Coaching	Average PF
Nora	100	100	100	100
Destiny	100	100	95	98.33
Alice	100	94.44	100	98.15
Evelyn	100	100	100	100
Average PF	100	98.61	98.75	99.12

Social Validity and Contextual Fit

All four families positively rated the PTR-F process. On questionnaire items on the modified TARF-R with a rating of 6 indicating the most favorable score, the average social validity rating across families was 5.22. Average social validity ratings for Nora was 5, Destiny was 6, Alice was 4.79, and Evelyn was 5.11. All parents strongly agreed that the PTR-F process was effective for their children and the outcomes of the PTR-F process were valuable to the families (Mean = 6; Range = 6-6). Families also highly rated items related to the family's willingness to perform the PTR-F process again (Mean = 5.75; Range= 5-6) and their confidence in PTR-F process's effectiveness (Mean = 5.75; Range=5-6). However, families' ratings varied for items regarding the amount of time required for the PTR-F process (Mean = 4; Range = 3-6) and other family members' willingness to help the PTR-F process (Mean = 4.25; Range=2-6).

All families also favorably rated the contextual fit of the BSPs that they developed and implemented. On questionnaire items on the modified "goodness-of-fit" measure with a rating of 6 indicating the most favorable score, the average contextual fit rating across families was 5.4.

Average contextual fit ratings for Nora was 5.24, Destiny was 5.94, Alice was 5.06, and Evelyn was 5.35. All parents strongly believed that the researcher understood the needs their children had for support across the day and settings (Mean = 6; Rage = 6-6) and that the researcher provided them enough materials and procedures they needed for implementing the intervention (Mean = 6; Range = 6-6). Families also highly rated items related to the BSP's recognition of their needs as a mother (Mean = 5.75; Range = 5-6)and child's positive contribution to the family (Mean = 5.75; Range = 5-6), BSP's fit with their values and beliefs (Mean = 5.75; Range = 5-6), inclusion of families' successful strategies in BSP (Mean = 5.75; Range = 5-6), and their ability to maintain the strategies for more than a year without frequent coaching (Mean = 5.75; Range = 5-6). Nevertheless, families' ratings varied for the item on whether they clearly understood what other members of the team (e.g., Gounah and other family members) were expected to do as part of the BSP (Mean = 4.5; Range = 3-6).

Qualitative Findings

The goal of the qualitative interview was to understand culturally and linguistically diverse (CLD) families' experiences and perceptions regarding the contextual fit of PTR-F. Through thematic analysis, I sought to describe the context of CLD families of children with disabilities and to identify PTR-F components that made the intervention contextually fit for culturally and linguistically diverse families. Qualitative data analysis revealed five themes: (1) CLD families of children with disabilities navigate multiple identities, (2) assets of CLD families of children with disabilities, (3) PTR-F was culturally responsive, (4) CLD families experienced challenges during PTR-F, (5) PTR-F was socially valid. I will describe each of these themes in detail below with quotations from participant interviews. I selected quotes that can concisely

represent a theme across participants. Codes presented here frequently appeared throughout all participants' interview transcripts. All names presented below are pseudonyms.

CLD Families Navigated Multiple Contexts during PTR-F

As participants compared the strategies in their BSPs to their original parenting practices at home, they discussed several contexts they navigated during the PTR-F process as a culturally and linguistically diverse parents of a child with disabilities. The first context that often appeared in their responses was their culture of origin. Parents described how the "norms" from their home countries influenced their current family values, which heavily influenced their goals for BSP:

> 사실 제가 많이 레퍼런스 하는게 많은 것 같아요. 특히나 저희 부모님들이 갖고 있는 어떤 바른 행동, 규범, 그런 부분이 대부분 제가 동일하게 그 생각을 가지고 있고, 그리고 친구한테 또는 오빠한테 어떻게 해야 된다—그거를 제 아이들 한테도 똑같이 그 생각을 공유하게 되는 것 같고요. [In fact, I think there are a lot of things I refer to (from my parent's parenting practices). In particular, I share the same thoughts about some of the right behaviors, norms, and things like those with my parents. And how to behave when you are with friends or towards an older brother—I seem to share the same thoughts with my children.] (Evelyn)

The parents' culture of origin seemed to affect their decision to use the strategies in their BSP and interactions with their children: "This intervention is really good as we are talking about our emotions, feelings that my culture doesn't talk that much." (Nora); "I'm not so good at dealing with emotional things, so I think that is why my conscience is avoiding it when I am with her (Molly)." (Nora). Participants explained that they often reflected upon their childhood upbringing as they explored different parenting strategies through various mediums, including the PTR-F process: "A lot of reflection in my own childhood, and like, you know, so like kind of

healing, too (Destiny).” They described how they reflected upon the mistakes of their parents while learning a new parenting strategy through a parent-mediated intervention or a parent education program like the PTR-F: “This is what’s growing up, we learning how to be a better parent than other parents. … We teach, we learn from mistake of our parents and everything to be better and think about how we can do better job (Destiny).” If parents did not like a part of their younger self shaped by the culture of origin, they tried to select and include a strategy that is different from their parents’ strategy in their BSP: *“I grew up not very confident, and I feel like Monique has it, and I don’t want to kill that confidence (Nora)”.*

While participants’ culture of origin has influenced their current values and customs, it did not dominate their decisions as they participated in the PTR-F process. Another context that was influencing their choices during PTR-F was the life as an immigrant:

> We are in a mixed culture world right now. Every part of the world can be explored through the internet, through whatever resources out there that is free. I believe that we are going to pick up good cultures for her (Molly) because we know this culture has this weakness, this culture had that weakness. Then we create a new way of living in multi-cultures and living together. (Nora)

Participants were consciously choosing what they like and do not like in their cultures of origin and the culture they are currently in as they considered values to teach their children during the PTR-F process: “I feel like people here have some ego even though they are so young. I like the way people are humble more than ego (Nora).” Additionally, even if PTR-F introduced new practices that contradicted against their culture of origin, they believed that adapting to the new environment requires them to learn new practices to adapt to the new environment:

> In the countryside, we played in nature. … It's like, when you are in nature, you escalate (calm) your own emotion. Nature is teaching you how to experience it. When you go in nature, you will feel calm. But in our city, we cannot escalate (calm) by ourselves, we need help from adult. We need to talk about our feelings. It's hard to escalate (calm) or manage your emotion by yourself because you don't have nature to calm you down. (Nora)

In other words, participants were living a unique context where they navigated different cultures and made decisions for what to keep and change from their culture of origin.

The last context that participants described as having a significant impact on them while determining their goals in BSP was the life as a parent of a child with disabilities. They often described how their kids have "different" challenges or needs: "It's hard for them to learn how to regulate emotions, you know? (Alice)", "It does not mean that they are not going to learn anything, but there are things which are going to be challenging for them because of differences (Destiny)." This sometimes made them feel lost about what to do during the PTR-F process: "사실 정답도 모르겠고, 아이가 좀 어려운 부분이 있다보니까.. [Actually, I don't know the right answer, because my child has some difficult parts.] (Evelyn)." They recalled worrying that the traditional parenting strategies that their parents used would "break (Destiny)" their children. This concern had them seek opportunities to learn different strategies to raise their children, such as participating in the research study on PTR-F: "Because they are both neurodiverse, it was a different challenge, so I have to be like, always learning (Destiny)." Serving multiple roles as a mother, teacher ("I do work with him, too, you know, I do interventions like 24/7." Alice), advocate ("It's very important to me to always highlight, "Hey, it's not something

wrong with you." Alice), ally ("You have to move from your position to be a much stronger ally, like a teacher-parent." Destiny), a service provider ("I do myself like sensory integration with him." Alice), or even a "superhero (Destiny)", they constantly felt the need to learn and change their parenting practices to accommodate their children's constantly varying needs. Therefore, the context of living a life as a parent of a child with disabilities led them to actively participate in the PTR-F process as a learning opportunity.

Assets of CLD Families of Children with Disabilities

Navigating multiple contexts as a cultural minority, immigrant, and a parent of child with disabilities, the participants gained various skills that contributed to their use of BSP strategies. Parents often described themselves as flexible and open to new practices and changes: "I am a person that is open-minded to learn. I think that what makes us better is what works for us. Everyone has a different way of working things out in their own thought or own mind, whatever works best and easiest, I think would be good (Nora)." Nora also shared, "this research is a really great experience because I feel like this is an opportunity for me to raise Molly in a creative way." Many participants already had some knowledge and experience of using evidence-based strategies in their BSPs. For instance, participants knew the importance of explicitly teaching necessary skills to their children: "If I don't teach them, I cannot put this expectation and I have to model it again and again and do it (Destiny)." They also had used some evidence-based practices in their BSPs before they participated in this study:

> We had a lot of books, like books (about) word is not for hurting, things like that. Like social stories, we have been using it and exchange between two houses, (about divorces),

things like that. We've been using those. And not paying attention to the challenging behavior. I did that, too (Nora).

Most parents reported that they had known about the effective practices that they included in their BSPs during this study, but they had not consistently used them at home before the current study:

내가 싫어하는 행동은 무시하고 좋아하는 행동에 대해서만 격려 해야지 하는 부분은 예전부터 제가 많이 추구하려고 했는데 잘 못했던 것들이 많아요. 특히나 애가 문제 행동이 좀 크게 보이면 그게 잘 안됐던 부분인데, 그렇게 하려고 했던 부분들은 많이 있었어요. [I tried to pursue the practice of ignoring the behaviors I do not like and encouraging the behaviors I like, but I could not do them well. It did not go well especially when the child's challenging behavior seems persistent. But I still have tried to a lot of those practices.] (Evelyn)

The participants also have developed independent problem-solving skills while applying new practices with their children, and this facilitated their implementation of BSPs during PTR-F: "I like, (have) skills that you kind of, like, analyze constantly, you know, and constantly look for solution, how it is sometimes working (Destiny)." Additionally, parents had grown a strong belief in their ability to make changes as they went through multiple opportunities to solve problems on their own, which boosted their confidence during PTR-F: "You're not going to be like your child therapist, but you can teach your child too because he comes back home, he sleeps here, he stays with you, and you know him better than anybody else (Destiny)." Likewise, they had developed resilience while navigating the life of an immigrant parent of a child with disabilities. Nora shared that this resilience kept her participating in the PTR-F and believed that knowing the value of resilience would help other parents who may participate in the PTR-F:

"Even though someday you fail, but you just keep on going. I think that was a thing to remind a parent that it is not perfect. You cannot reach the goal in the graph all the time. We can just up and down, but just keep on moving (Nora)."

PTR-F Is Culturally Responsive

Parents found the PTR-F process contextually fit for the multiple cultures they needed to navigate. They reflected that the PTR-F process was culturally responsive in four ways: (1) PTR-F enhanced parent's strengths, (2) Coaching helped establishing partnership, (3) Researcher's coaching skills played a key role in building trust, and (4) PTR-F components supported family's unique practices and values.

PTR-F enhanced parents' strengths. As discussed in the first theme, participants already knew several effective strategies for addressing their children's challenging behaviors. Participating in the PTR-F process further strengthened their skills by helping them practice the strategies that they knew effective but found difficult to use at home:

> 그리고 PTR-F 좀 더 강조해줬던 게 프리벤트. 제가 어떻게 프리벤트를 할지도 참 고민을 많이 했고, 얘기를 많이 들었는데, 어떤 식으로 프리벤트를 계획하면 되는지를 좀 더 자세한 예시를 주니까, 그 부분이 좀 배우는 게 많았어요. [And the PTR-F emphasized a bit more on the Prevent. I thought a lot about how to prevent, and I heard a lot about it as well, but PTR-F gave me more detailed examples of how to plan for the Prevent, so I learned a lot from that part.] (Evelyn)

As previously mentioned, similarly, participants in this study had a strong belief in their ability to make changes. When asked what practitioners or researchers should know about implementing the PTR-F process, they emphasized the importance of letting parents know that they can make changes: "Empowering parents lets them believe in themselves. You know, with

parents, as long as you stay and believe in them, they can do amazing stuff (Destiny)." And when asked what they would like other parents to know about the PTR-F process, participants discussed how PTR-F plays a crucial role in enhancing parents' self-efficacy: "Everyday life, you go through so much, and this intervention is just one of the reminders for the parent that we can be better (Nora)."

Coaching Helped Building Trustful Partnership. Building strong partnership between the researcher and the parent was critical especially when they were from different backgrounds: "It was not only introducing backgrounds. You took the time and invested in like building relationship between us because it's a different culture. It's difficult when it's different backgrounds (Destiny)." All the participants described how "discussing about specific problems, brainstorming a solution together, and structured feedback" during coaching supported them in establishing the partnership with the researcher. Back-and-forth conversations during coaching session was also helpful for letting the researcher know about the unique family practices: "제가 이렇게 말을 많이 하게 될 줄은 몰랐어요. 그래서 생각보다 많이 이야기하게 되었어요. 제가 알고 있는 다른 데서 얘기할 때보다 그런 것이 많이 도움이 된 것 같아요 [I never thought I would talk so much. I talked a lot more than I thought. I think that helped a lot more than talking elsewhere I know.] (Evelyn)." When asked to describe an ideal facilitator-parent relationship, a few key words appeared from the participants' responses, including feeling understood: "You kind of see other person, you see what he's going through and what he's doing, and you're not kind of judging him (Destiny)." Feeling understood was critical for parents to comfortably participate for a long time:

> 생활이 좀 많이 복잡할 수 있으니까, 잘 들어줄 수 있는. 그 생활을 어떻게 잘 들어줄 수 있는지. 어떻게 보면 이제 이 프로그램만 하는 것도 아니고, 이걸

> 계속하려면 이제 학부모가 좀 더 편안하게 참여가 되어야 오래 가고. 더 긍정적으로 생각을 하게 되니까. 자기 아이의 생활을 잘 풀어낼 수 있게 하면 아주 도움이 될 거 같아요. [Family's life can be a bit complicated, so it's important to listen carefully or think about how to listen to their life well. In a way, it's not just this program they are doing now. To continue participating for a long time, parents should be able to participate more comfortably. This helps them think in a more positive way. I think it will be very helpful if you can help them talk about their child's daily life.] (Evelyn)

Nora also shared the importance of feeling that the researcher is not judging:

> If you feel like you don't feel comfortable with talking about parenting with someone, it will be stiff. I'll probably not go this far. You know what I mean? If I feel like I'm a bad parent, (if) you were making me feel that way, it would be really tough.

Researcher's Coaching Skills Played a Key Role in Building Trust. As participants discussed what supported them in building strong relationship with the researcher, they often focused on the researcher's personal skills or attitude during coaching. For example, the Researcher's flexibility in communication, data collection, and intervention planning was crucial for meeting family's needs:

> It was flexible. It was not rigid, you know. One of the problems with a lot of BCBAs is rigidity, unfortunately, I have to say it because they are quite rigid in the way how they see that things have to be implemented in a specific way. … And I think this is one of things which could cause burnout because kids are unique, every family is unique, so we have to be flexible anyhow. (Destiny)

The researcher's acceptance of imperfections and acknowledgement of ups and downs throughout the intervention also relieved parents from feeling pressured:

> 너무 이렇게 목표지향적인, 처음에는 저도 그랬지만, 어떻게 금방금방 이렇게 될까 쪽에 생각을 많이 했는데, 생각보다 그렇게 잘 안 된다는 걸 서로 잘 이해하고 좀 기다리고 그러면 저희가 집에서 할 때도 프레셔 좀 덜 받고, 애한테도 프레셔를 덜 주고. 하지만 이제 이게 (중재가) 워킹할 거라고 같이 믿는. [I used to be so goal-oriented at first too, and I thought a lot about how it would happen soon. But understanding that things may not always go as well as we thought would be and waiting a bit could give us (family) less pressure at home, and the child will get less pressure as well. However, (people in the ideal relationship would) still believe together that this intervention would eventually work.] (Evelyn)

Furthermore, all participants appreciated the researcher's clear communications throughout the intervention. Various accommodations facilitated their communications, including use of multiple communication methods (Nora, Alice), follow-up emails (Nora, Evelyn, Alice, Destiny), easy-to-understand and detailed languages in BSP (Evelyn, Alice, Destiny), providing translated resources (Evelyn), and visual presentations (Destiny, Alice). Participants also highly valued the researcher's attempt to make personal relationship, rather than professional relationship: "You invested in me and in my family. I could see it's not only like a professional style but it's like a personal (Destiny)." Participants especially recalled the feeling of personal connection with the researcher when the researcher asked many questions about the child's interests to personalize intervention materials for their children. For example, the researcher created an individual social story where the child and the sibling were the main characters in the child's favorite cartoon. Participants also received individualized visual schedules decorated with

the child's favorite cartoon characters: "Like for example, during story time, you ask like, what's the child's best interest, because most practitioners, they don't do that, you know? (Alice)." Lastly, participants reflected that researcher's paraphrasing particularly reassured them that they were being understood: "You reflect things that I am talking. I don't know how to explain it. Yes, I think the way you reflect what I tell you is helpful for me to open to talk with you (Nora)."

PTR-F Components Supported Family Practices and Values. Participants found several PTR-F components supportive for maintaining their unique practices and values. First, the step to introduce their background at the beginning of the training was helpful for informing the researcher about relationships within the family and the overall character of the family:

> 학부모와 진행자가 서로 알아가기가 좀 많이 도움이 됐던 것 같아요. 저희 상황을 좀 풀어놓고, 집이 어떤 분위기고, 또 어떤 식으로 인터렉션하는지, 엄마와 아이 관계가 어떤지, 또 시블링 간의 관계가 어떤지, 이거를 좀 편하고 허심탄회하게, 어떻게 포장할까 좀 고민하지 않고 있는 대로 말하는 게 도움이 됐던 것 같고요. [Understanding each other's background helped a lot. Honestly talking about our family situation, what kind of environment our family has, how we interact, what the mother-child relationship is like, and what the sibling relationships is like.. It was helpful to candidly talk about these things just the way they are without worrying about how to cover it.] (Evelyn)

Understanding the family's background was a foundational step for making the consequent PTR-F components culturally responsive. For instance, Alice and the researcher were able to prioritized improving the sibling interaction when they developed the BSP because they discussed Alice's family value on the sibling relationship: "In this program, they (Mason and his sister) started playing together, which was very good. He learned that it's okay to play with his

sister. That was very good." Destiny also recalled that the process of developing BSP together allowed her to include the sibling in the intervention, which was essential for Jake's learning as well as for their family value on the sibling relationship: "We realized that we don't need to teach only Jake, but we have to teach his sister too in order to get effective.", "She was immediately involved there and quite became an active participant."

Furthermore, strategies in the PTR-F intervention menu aligned with participants' family values for raising their children, such as confidence and independence. For instance, teaching strategies helped the participants promote confidence in their children:

> Teaching her about the emotional things. I believe that would help express her emotions, because right now, I feel like she still has the problem expressing it in the way it is. Sometimes she doesn't feel confident in what she's doing. … I think it is very important for her to learn about her emotions, so she can understand other people's emotion, too. (Nora)

Reinforcement strategies also supported the family value on confidence by motivating children to tackle challenges: "그리고 적절한 보상을 잘 주는 게 아이가 자립적인 행동, 아니면 좀 도전을 해보는 그런 부분을 좀 더 잉코리지 하게 되는 것 같아요 [And giving appropriate rewards seems to encourage the child to act independently or to challenge a little more.] (Evelyn)." Additionally, participants believed that prevention strategies, such as "providing high rates of positive attention (Alice)", could invigorate confidence among their children:

> 긍정적인 관심을 자주 표현하는 게 애한테 정말 중요한 것 같아요. 피드백을 받고, 이렇게 잘한 거구나 이러면 자기가 다음 것도 해볼 수 있고, 엄마한테 공유도 해볼 수 있고. 그런 식으로 자꾸 같이 있어 주는 부분이 아주 중요한 것 같고요. 자기가 좀 더 해볼 어떤 의욕을 주고, 자신감을 더 북돋아 주고 [It's really

> important to frequently express positive attention to a child. If they receive feedback and we say that you did well, they can try the next thing or share that with the mother. I think it's very important to being close to them like that. It motivates them to try more and boosts their confidence.] (Evelyn)

Nora also shared that giving children choices, another prevention strategy, aligned with her hope for fostering Molly's independence: "I like that we let her make choices and that it gives her opportunity to think by herself."

CLD Families Experienced Challenges During PTR-F

Though the participants described the overall PTR-F process as contextually fit for their contexts, they still experienced a few challenges during the process due to their cultural differences. For example, value from the participant's country of origin sometimes made it difficult to use some strategies in the BSP:

> It's not that hard to learn, but I'm just not used to it like the way I need to switch from—I used to live in a community that we respect our adults. We are not yelling at adult. When she yells at me, it kind of pushes the switch thing. That is a really tough spot, because then I'm going to need to calm myself down before I can keep her at wise or do whatever. That is the hard part of me, because we had believed that we need to listen to adult. (Nora)

Evelyn also shared that facilitators in her home country would tell them exactly when and what to do, rather than leaving parents to find natural teaching opportunities: "사실 뭘 해야 될까 처음에 그 감을 잡는데 조금… 뭔가 할 일이 주어졌다기 보다는 어떤 상황이 돌아갈 때 기회를 잡아서 들어가야 된다는 그게. 제가 본 한국 행동 중재 코칭에서는 우선 제가 가르칠 게 있거든요. [Actually, in the beginning, I was a bit lost about what I should do…

Rather than being given something to do, you have to seize the opportunity when there is a certain situation. In a Korean behavioral intervention coaching program I saw, I would have something to teach first.] (Evelyn)"

Some participants mentioned lack of supports from extended or other family members as a challenging factor: "If my mom was helping me, I think that would not be a lot for me to do things. (Nora)", "PTR-F 가 아쉽다기 보다는, 조금 가족 지원이 더 있었으면, 딸이나 남편의 도움이 좀 더 매끄러웠으면 어땠을까 그런 생각이 있고요. [Rather than having regrets about the PTR-F, I have thoughts about how it would have been if there had been a little more family support and if the help from my daughter or husband had been a little smoother.] (Evelyn)"

PTR-F Was Socially Valid

The last theme that appeared throughout most participants' interview responses was the meaningful changes that they experienced through and after the PTR-F process. The changes in themselves and their children were noticeable: "I noticed it decreased almost when we started the coaching. (Alice)", "I notice that I am doing it a lot more. When they are playing together so nice and I will be like—oh you are doing so well guys—. (Alice)" The participants also described that the PTR-F process had a significant impact on the sibling interactions: "It changed the way how she starts seeing a positive in her brother. I think it's a game changer for her because he stopped being a burden and he got this like 'my sister sees and hears me.'. (Destiny)" Additionally, the participants found themselves generalizing what they have learned from PTR-F to other contexts outside their homes: "Even at school, they started noticing that he's actually more open to other peers. (Alice)", "저도 이걸 자주 하다 보니까, 계속 그게 리마인드가 되어서, 리코딩을 하든 안 하든 자꾸 이게 생각이 나죠. 저렇게 할 때 내가 이렇게 할 단계구나—이런 것들.

[Because I do this often, it keeps reminding me of it. So whether or not I record, I keep thinking about this. When he's doing that, it's time for me to do this—things like these.] (Evelyn)"

Mixed Methods Findings

The mixed methods findings will demonstrate the integration of quantitative and qualitative data and inferences based on the merged data. First, I will describe the general mixed methods findings that correspond to the third research question of the current study (i.e., How do parents from culturally and linguistically diverse communities perceive the contextual fit of PTR-F process?). Second, participants will be divided into two groups based on their quantitative results. Then, by presenting a set of joint data displays for each participant, I will describe factors that might have influenced their implementation of BSP strategies (see Table 9-12 for joint data displays).

Contextual Fit of PTR-F process

In regards to the third research question, participants' answers to the contextual-fit questionnaire and their interview responses indicate how CLD parents perceived the contextual fit of the PTR-F process. All parent participants highly rated the contextual fit of the BSPs on their questionnaires. Qualitative data suggests that parents perceived PTR-F contextually fit because PTR-F enhanced their strengths, its coaching helped establishing partnership between the researcher and the parent, researcher's individual coaching skills facilitated building trust, and several PTR-F components supported family's unique practices.

PTR-F Enhanced Parent's Strengths. The quantitative result from the contextual fit questionnaire indicated that parents perceived BSPs to be embracing families' successful strategies. Qualitative data further explains specifically how BSPs supported families' existing skills. For example, Evelyn shared during the interview that her BSP strengthened her skills by

helping her practice the strategies that she already knew effective but found difficult to practice at home. Participants also reported that PTR-F played a key role in strengthening their self-efficacy by working as a "reminder for the parent that we can be better" (Nora). This might have contributed to families' successful implementation of BSP strategies during PTR-F.

Coaching Helped Establishing Partnership. According to the quantitative result, parents believed that the researcher understood their children's needs. Qualitative data suggests that strong partnership that the researcher and parents established through coaching supported their shared understanding of the children's needs. For example, participants noted how regular back-and-forth conversations was helpful for communicating to the researcher about their unique family practices. Quantitative result also indicated that parents believed that researchers understood their needs as mothers. Qualitative data elaborates this result by suggesting that the coaching during PTR-F met mothers' needs to "feel understood" and "not judged." Evelyn and other parents emphasized that the researcher's active listening and understanding of family's complicated life during coaching helped them feel comfortable and keep participating in the PTR-F process for a long time.

Researcher's Coaching Skills Played a Key Role in Building Trust. The quantitative finding from the contextual fit questionnaire indicated that parents were satisfied with researcher's provision of materials for implementing the intervention. The qualitative result elaborates how researcher's personal skills supported building strong relationships with CLD parents, eventually enhancing the contextual fit of PTR-F. For example, participants appreciated how the researcher used various accommodations for clear communications, such as use of multiple communication methods, easy-to-understand languages in BSP and follow-up emails, providing translated resources, and visual presentations of instructions. Additionally, all

participants noted that researcher tried to develop personal relationships with them by asking questions about the child's interests, investing time to understand the family's background, and creating personalized materials for their children.

PTR-F Components Supported Family's Unique Practices and Values. The quantitative finding from the contextual fit questionnaire indicates that parents found their BSPs align with their families' important beliefs. The qualitative finding from interviews suggests that several PTR-F components, including the step to introduce each other's background, was particularly crucial for making the overall PTR-F process contextually fit. For instance, the researcher and the parent could prioritize sibling interaction and involve a sibling in the intervention in BSP because they understood the family's value on sibling relationship after talking in-depth about the family's background. Strategies that families selected to include in their BSPs also aligned with their family values for raising children, such as promoting confidence and independence.

Factors Influencing the Implementation of BSP Strategies

Based on the single case design study data, four participants were categorized into groups of two. Destiny and Evelyn demonstrated consistent and immediate changes in implementation fidelity of BSP and their child's challenging behaviors. On the other hand, Alice and Nora showed variable changes in implementation fidelity and their child's challenging behaviors. I used qualitative interviews to understand what affected these differences between two groups.

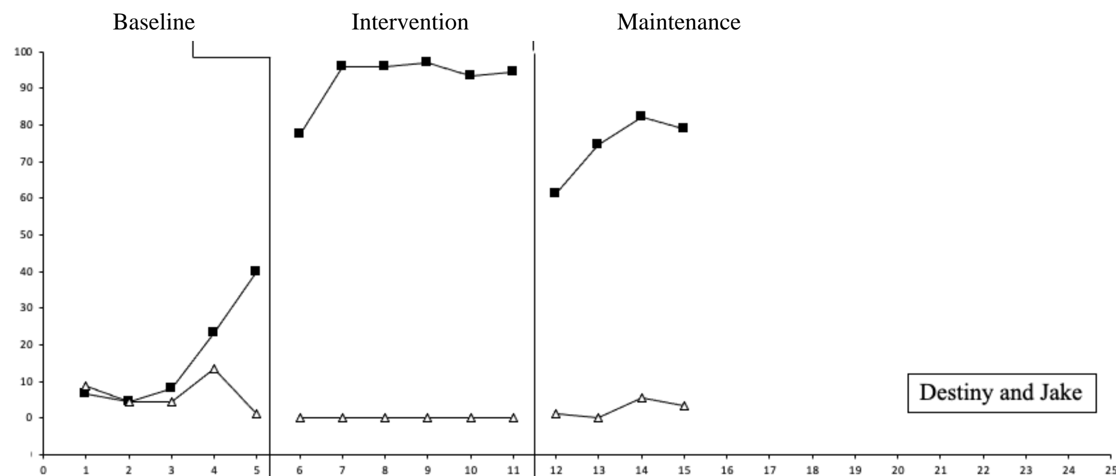
Families with Consistent and Immediate Results. Both Destiny and Evelyn described how they often monitor the problem they would like to address and think of different ways to solve the problem. For instance, Destiny started teaching Jake a replacement skill (i.e., asking for

his turn) before she started the intervention. Regardless of whether or not they participated in coaching, Destiny and Evelyn "constantly analyzed" and "looked for solution." Evelyn and Destiny were also quick to respond to any problem they noticed. When I asked Evelyn how she was able to implement all strategies in her BSP in a short period of time, she said that she had started using the word "HELP" with Andy before the intervention began.

Families with Variable Results. The common difficulty that both Alice and Nora had during the intervention was finding a teaching opportunity. When asked what might have prevented them from using the strategy, Alice and Nora discussed external environmental variables that influenced their performance, such as family relocation and demanding work schedules.

Table 9

Joint Display of Results for Destiny



<table>
<tr><th>Quantitative Summary</th><th>Qualitative representation</th><th>Mixed Methods Analysis</th></tr>
<tr><td rowspan="3">Destiny showed low variability, low levels and increasing trend of implementation fidelity in the baseline condition. Her implementation fidelity immediately increased in the first intervention session. Her implementation fidelity reached 96% in the second intervention and remained above 90% for the remainder of intervention sessions.</td><td>When I asked her what led her to start teaching before the training, Destiny answered:
“In the three videos, (I’m) seeing what problem is recurring, because I’m still there, I’m recording. I’m still present and looking what’s going on. So it push(es) me to say, “yeah we have some problem here. He cannot ask, or he cannot do this. He cannot request and this could be a problem for him.”</td><td rowspan="3">Overall, Destiny showed high implementation fidelity of using BSP, with immediate increase after the condition change.
Destiny showed an increasing trend of implementation fidelity during the baseline condition because she started teaching Jake a replacement skill (i.e., asking for his turn) before she started the intervention. Describing</td></tr>
<tr><td>“It changed the way how she starts seeing a positive in her brother. I think it’s a game changer for her because he stopped being a burden and he got this like, ‘my sister sees, hears me’.”</td></tr>
<tr><td>Regardless of whether or not she participated in coaching, Destiny “constantly analyzed” and “constantly looked for solution.”</td></tr>
</table>

<table>
<tr>
<td rowspan="2">Overall, Destiny’s level of implementation fidelity during the intervention condition than her level during the baseline condition. There was no overlap of data point between the two conditions.

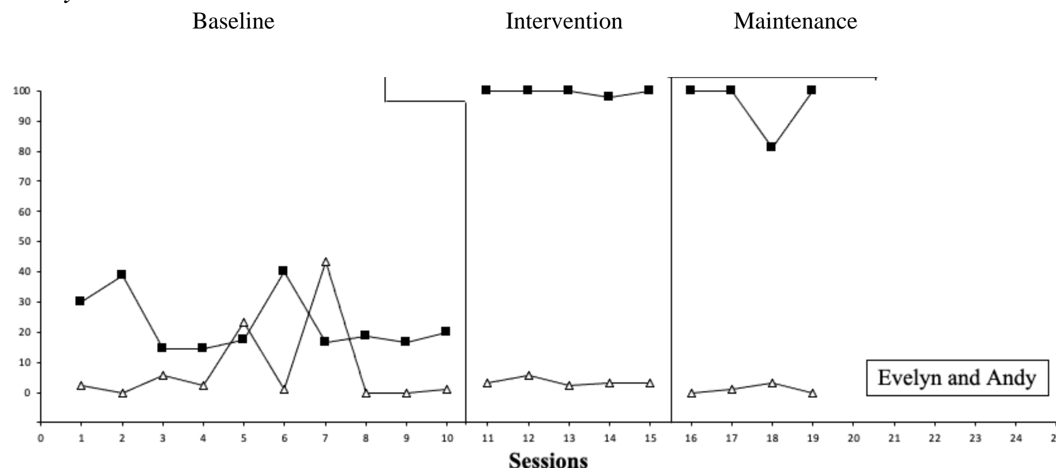
Jake showed a relatively low level of challenging behavior during the baseline condition. Excluding one session with more challenging behaviors, Jake’s percentage of challenging behavior during baseline was stable with little variability and demonstrated a decreasing trend. When intervention began, Jake’s challenging behavior immediately decreased to and stayed at 0% throughout intervention sessions. Intervention data showed no variability with a low, stable trend. Overall, Jake’s challenging behavior decreased in the intervention condition compared to the baseline condition with no overlap.</td>
<td>Destiny described herself as a quick responder: “I maybe didn’t have a plan, but I could see which skill he was missing and which (skill) he doesn’t have. So, I’m like, “okay, that might be a problem to solve.” I acted, I’m quite fast when it comes to changing my own behavior.”</td>
<td rowspan="2">herself to be quick at responding any problems she notices, Destiny reported that she might have started tackling the problem as she noticed the consistent pattern while recording the target routine. Because Destiny tends to constantly monitor the problem they would like to address, she might have independently thought of ways to solve the problem.

Destiny explained that her implementation fidelity decreased two weeks after coaching stopped because she was sick for that week.

Jake’s challenging behavior decreased to 0 in the intervention condition. Though the amount of change from the baseline condition to the intervention condition did not seem significant, Destiny was very satisfied with the result and described how the BSP was a “game changer”.</td>
</tr>
<tr>
<td>“Every time you get sick, you’re going one step back, you know.”</td>
</tr>
</table>

Table 10

Joint Display of Results for Evelyn

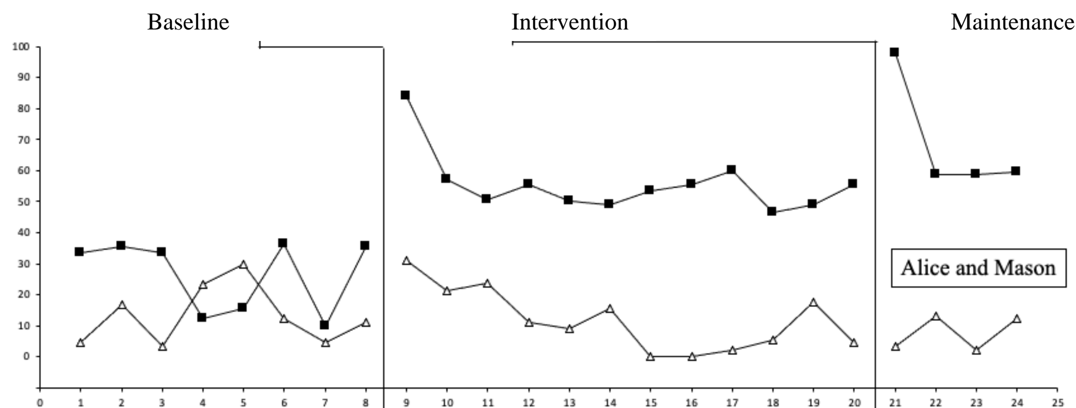


Quantitative Summary	Qualitative representation	Mixed Methods Analysis
Evelyn's use of BSP strategies somewhat varied, yet consistently maintained a low level. Evelyn showed an immediate increase in her implementation fidelity in the first intervention session. Her implementation fidelity reached 100% and showed a stable trend throughout the intervention condition. Evelyn's level of implementation fidelity during the intervention condition remained significantly higher than	"사실 제가 핸드폰 메모를 좀 해놔요. 그날 끝나고 나서 점수 적으면서. 또 중간에 잠깐 촬영 안할 때도 좀 눈여겨보게 되죠. 이런 개선이 되어야 겠구나, 그런. 코칭을 받다 보니까 이제 그쪽으로 생각을 많이 하게 되는 것 같아요." [I actually make some notes on my phone after writing down the score for the day. Also, I pay attention (to the child's behavior) even when I am not filming. Like, "This should be improved." I think a lot like that after receiving coaching.] Evelyn had started using the word "HELP" with Andy before the intervention began: "하기 전부터 제가 헬프라는 용어는 조금 노출 시켰어요. 그래서 그 헬프를 주는 건 그렇게 새롭지는 않았어요. [I exposed Andy to the term "HELP" before starting the intervention. So teaching that word was not that new to me.]"	Evelyn showed the robust improvement in her implementation fidelity with an immediate increase at the phase change and a stable, high level of fidelity throughout the intervention sessions. She described that BSP was very precise for her to follow. Additionally, she explained that she had been using the term "HELP" before the intervention, so teaching part did not feel entirely new to her. Additionally, Evelyn described how she often monitored problems and thought of room for improvements during non-target routines. This independent problem-

during the baseline condition without any overlap with the baseline condition. Andy showed a relatively low level of challenging behavior during the baseline. He showed some variability during two baseline sessions, but his challenging behavior demonstrated a low level with a slightly increasing trend. Andy's challenging behavior slightly increased during the initial intervention session. Though all intervention data points overlapped with baseline data points, all data points stayed below 6% with minimal variability. In general, the level of Andy's challenging behavior was slightly lower in the intervention condition compared to the baseline condition.	"행동지원계획이 너무 정확하게 제가 뭘 하면 되는지에 대해서 정확히 나와 있었어요." [The behavior support plan was very precise about what I should do.]	solving might have supported Evelyn in achieving and maintaining high implementation fidelity. Aligned with Evelyn's high fidelity, Andy's level of challenging behavior decreased, and the trend became more stable in the intervention condition.

Table 11

Joint Display of Results for Alice

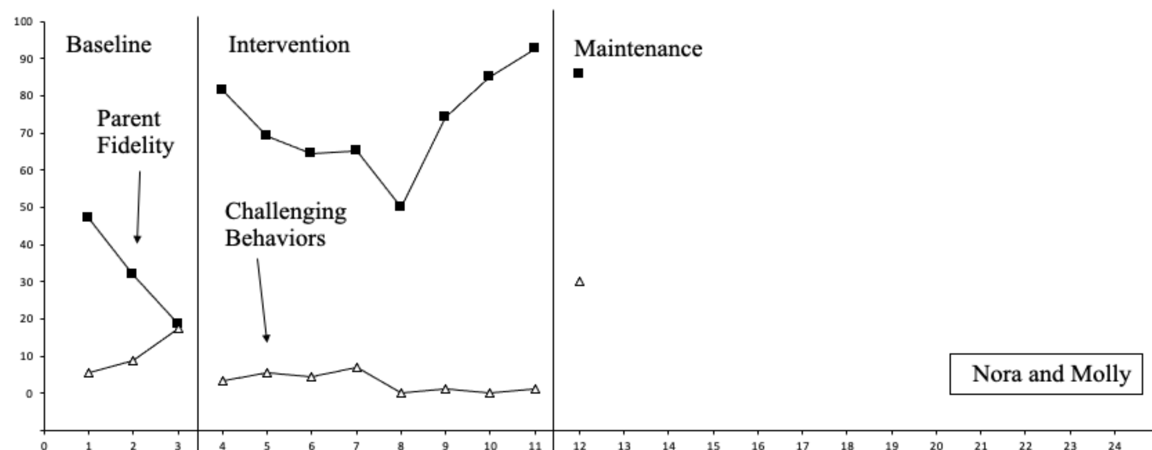


Quantitative Summary	Qualitative representation	Mixed Methods Analysis
Alice's implementation fidelity of BSP strategies varied, but the level was low throughout the baseline condition. Her implementation fidelity immediately increased in the first intervention session but decreased in the second intervention session. Her implementation fidelity stayed below 60% for the remainder of the intervention condition. Nevertheless, her level of implementation fidelity during the intervention did not overlap	When asked what made it challenging for her to use the teaching strategy, Alice answered: "The teaching moment happens so unexpectedly.", "I'll get distracted, and it was the time we were moving." "It's a lot going on and at that moment, to actually remind yourself is very hard." "I notice, I'm doing it a lot more, when they're playing together and I'll be like, 'oh, you're doing so well, guys." "Everyone at school started noticing that he's actually more open to other peers. It's pretty noticeable. He plays well, like being good and not being involved with the challenging behavior, or try to control his emotions."	Though Alice's level of implementation fidelity was higher in the intervention condition than in the baseline condition, her level of implementation fidelity was low in general throughout the intervention sessions. However, she expressed overall satisfaction with her increased use of BSP strategies. Alice had a difficulty with finding a teaching opportunity. According to Alice, environmental factors, such as family relocation, was a barrier to her implementation of BSP. Alice's family relocated to a different town during the intervention condition. The process of packing and

with that of the baseline condition at all. During the baseline condition, Mason showed a moderate level of challenging behavior. His challenging behavior during baseline was highly variable with a slightly increasing trend. Mason's challenging behavior increased when the intervention started, but soon showed a decreasing trend with some variability at the end of the intervention condition. 58.33% of intervention data points overlapped with the baseline data points. The overall level of Mason's challenge behavior was slightly lower in the intervention condition than in the baseline condition.		unpacking and playing in a disorganized setting might have prevented her from fully paying attention to BSP implementation during a target routine. Alice also felt that the target routine (e.g., Mason's play time with his sister) consisted of many distractions and that it was hard to predict when to intervene for a teaching opportunity while facilitating their play. Overall, Mason's challenging behavior slightly decreased in the intervention condition with some overlaps with the baseline condition. Nevertheless, Alice reported that his challenging behaviors significantly improved not only at home but also at school.

Table 12

Joint Display of Results for Nora



Quantitative Summary	Qualitative representation	Mixed Methods Analysis
Nora showed a decreasing trend and low level of implementation fidelity. Nora's trend of implementation fidelity was variable throughout the intervention condition. After introduction of intervention, her implementation fidelity immediately increased. However, Nora's implementation fidelity varied in the intervention condition with the decreasing trend first and the increasing	"Every time I ask her about how she's feeling, it just takes longer time for the bedtime routine, so I just don't practice with her much about talking about her feeling." "It mostly depends on how busy the schedule is and how tired I am." "It's just maybe we read that before, and she's being like, remember all those. I think that's why we didn't continue reading or maybe it's not in the video." "Being a single parent, your every day will be relying on you. You need to go through this all by yourself and you need to remind yourself to eat. If you want to be a good mom, you need to take care of yourself first. You don't have anybody—Nobody has your back basically." "I mostly prevent things from happening and I didn't teach it at time, but I'll talk it later when I had time."	Though Nora had some variability in her level of implementation fidelity during the intervention condition, her level of implementation fidelity was higher in the intervention condition than in the baseline condition. There are several explanations for her variability during the intervention. First, Nora had limited time for initiating a teaching opportunity during the target routine (i.e., bed time). She sometimes did not have enough

trend later. Her level of implementation fidelity during the intervention condition remained higher than her level of implementation during the baseline condition, except for the sixth session. This was the only point of overlap with the baseline condition. Molly's percentage of challenging behavior during baseline demonstrated low level with a stable and increasing trend. Her challenging behavior immediately decreased when the intervention started. Her intervention data showed a low variability with a slightly decreasing trend. Overall, Molly's level of challenging behavior became lower in the intervention condition than in the baseline condition with few overlaps. There were two points of overlap.	"I'm not so good at dealing with emotion things, so I think that's why my conscience is avoiding it when I'm with her."	time to do all the bed time routines with Molly because of her work schedule. Nora reported that she had to skip the teaching step because it would extend the bed time routine. Nora also reported that her physical and mental wellbeing affected her implementation of BSP because she was often under stress as a single parent. Additionally, Nora sometimes chose to not use certain strategies. For instance, she sometimes skipped reading the social story to Molly because Molly remembered the story after reading it multiple times. Furthermore, Nora had difficulty with talking about emotions with Molly because she grew up not talking much about feelings. She thought that she might be unconsciously avoiding the teaching opportunity to talk about emotions. Nora also reported that she usually talked about emotions outside the target routine when she had more time to invest.

Chapter 5: Discussion

The purpose of this study was to assess the effectiveness of PTR-F for culturally and linguistically diverse families of young children with disabilities. I made the following adaptations to the original PTR-F model to improve the model's contextual fit: (1) Enhancing the relationship-focused activities during the training, (2) adding a structured step for improving the intervention's contextual fit, and (3) incorporating each family's contextual information with their observable results by conducting qualitative interviews after the end of intervention. The third step particularly allowed me to explore the families' perspectives on the PTR-F model's contextual fit and cultural responsiveness.

The study's main findings suggested the following: (1) the modified PTR-F process resulted in increased parent's implementation of the BSP strategies, (2) parent's improved implementation fidelity of the BSP strategies resulted in reductions in child challenging behavior, (3) families perceived the PTR-F process and their BSPs as contextually fit and socially valid. We believe that the current study is the first research that explored adaptations to make the PTR-F intervention more culturally responsive by exclusively recruiting CLD families and using a mixed methods research design. By particularly focusing on the experience of CLD families during the PTR-F process, the results from this study extend current literature that explores the effectiveness of PTR-F or PII in general.

The Effect of PTR-F Process on Parent Implementation Fidelity

The modified PTR-F intervention improved the CLD parent's implementation fidelity of using BSP strategies. This finding aligns with existing studies that have supported that families can implement function-based BSPs with their children with challenging behavior (Fettig & Barton, 2014; Hodges et al., Joseph et al., 2021). Though the PTR-F process in the current study was delivered virtually, all families achieved moderate to high implementation fidelity within

three sessions after the coaching started, replicating the findings of Hodges et al. (2022) that demonstrated high implementation fidelity using the PTR-F: R (Remote) model. Studie to date have studied PTR-F's efficacy largely with Caucasian, middle class, and two-parent families (Argumedes et al., 2021; Hodges et al., 2022; Joseph et al., 2021). And a PTR-F study whose participants were racially diverse did not provide detailed sociocultural information, such as family's income level, parent's education history, or marital status (Argumedes et al., 2021). The current study contributes to addressing this gap in the special education literature by exploring adaptations that can make the PTR-F accessible for CLD families, as well as by highlighting the immediate effect that the modified PTR-F can have on CLD parent's use of BSP strategies.

Though all parent participants improved their implementation fidelity of using BSP strategies after their first coaching sessions, the degree of change and consistency varied across participants. Whereas Destiny and Evelyn showed immediate and consistent improvement in their implementation fidelity of BSP, Alice and Nora's improvements were more less robust and more variable. The mixed methods results suggested several characteristics of the two groups that may have affected this difference. Families that showed consistent improvements (i.e., Destiny and Evelyn) frequently engaged in quick and independent problem-solving when they noticed a problem affecting their children's behaviors at home. In fact, this characteristic led Destiny to start using teaching strategies with Jake before she attended training and coaching sessions. It is possible that Destiny and Evelyn were more engaged in the PTR-F process throughout the course of the study due to their tendency to solve a problem right away. If so, this result aligns with the current literature that suggests that family engagement plays a significant role in shaping children's social emotional competence (Sheridan et al., 2010; Fantuzzo at el., 2004).

On the other hand, families that showed variable improvements (i.e., Nora and Alice) experienced the challenge in relation to finding a teaching opportunity. They both did not frequently use the strategy of finding a teaching opportunity throughout the study. Qualitative data indicated that various factors prevented Nora and Alice from using this strategy, including lack of time during the target routine or difficulty of remembering to teach in the middle of other concurrent activities. They also attributed environmental factors, such as family relocation and demanding work schedules, as barriers to their implementation of BSP. This result implicates that there was room for improvement in the PTR-F. For example, thoroughly reviewing the potential contextual challenges at the stage of BSP development, regularly checking in with families about the BSP's contextual fit in one of coaching sessions after starting the intervention and acquiring accurate information about parent's daily schedule and estimated duration for a target routine would be beneficial for creating BSP that is realistic for families to implement amongst their contextual challenges. A proactive conversation to understand what activities constitute the target routine or the ideal length of target routine might have supported Nora in developing a realistic BSP. Alice might have been also benefitted from a collaborative discussion to brainstorm additional family-friendly accommodations to help her remember the difficult strategy, such as a reminder visual for Alice.

Mixed methods results revealed the factors that might have influenced two different types of results related to PTR-F effectiveness. Nevertheless, this analysis should be considered with cautions because they are derived from only four data samples that are heavily based on individual participant's experience. Parents' tendency to immediately solve a problem may not be the only reason for the noticeable success. For example, it is important to note that both Destiny and Evelyn had postgraduate degrees while the highest educational degree Nora and

Alice had was bachelor's degree. Likewise, parents' experience of problems with external factors could be related to the parent's employment statuses; both Alice and Nora had full time jobs, which limited their time with children at home.

The Effect of Improved Parent Implementation Fidelity on Child Challenging Behavior

Parent's improved implementation fidelity of the BSP strategies was functionally related to the improvement in child challenging behavior. This result is consistent with the literature base (e.g., Buschbacher et al., 2004; Fettig & Barton, 2014; Fettig et al., 2015) that supports for the use of family-centered PBS to effectively reduce child challenging behaviors at home. Moreover, the finding of the current study suggests that parents can keep using the strategies in their BSPs for at least up to two weeks after coaching ends. This result aligns with the previous research that demonstrated that the intervention effects persist longer when families participate in the PBS process (Buschbacher et al., 2004). This result is particularly critical to note because other previous PTR-F studies (e.g., Joseph et al., 2021; Hodges et al., 2022) have not evaluated the maintenance of PTR-F effects. Thus, the study results expand current research by providing evidence that PTR-F's effects can be durable for culturally and linguistically diverse families of children with disabilities. More replication studies should be conducted to substantiate the findings.

Social Validity of PTR-F

The social validity findings in this study corroborate findings from previous research that suggest that families are satisfied with family-centered PBS or PTR-F (Fettig et al., 2015; Joseph et al., 2021; Hodges et al., 2022). Adult participants positively rated the overall PTR-F process and the individualized BSPs on the modified TARF-R questionnaire, agreeing that PTR-F process was effective on their behaviors and their children's behaviors. The qualitative finding

also suggests that parents felt that the PTR-F process had a noticeable impact on their use of evidence-based strategies and frequency of child challenging behavior. Furthermore, the qualitative result indicated that parents perceived the changes in their and children's behaviors at school or during non-target routines, confirming the existing literature on family-centered PBS's generalization effects (Buschbacher et al., 2004; Fettig & Barton, 2014). Particularly, the qualitative finding shows that all parents, except Nora who had one child, were pleased to see the significant impact that the PTR-F had on their children's interaction with their siblings. This finding underscores that involving a sibling in the BSP and considering sibling relationship during PTR-F were important for improving the PTR-F's social validity. Future studies should explore how PTR-F can be used to enhance sibling relationships and its positive impact on the overall quality of family's life.

Also noteworthy from the social validity finding is that two parents who showed high levels of BSP implementation fidelity (Destiny and Evelyn) rated the social validity higher than the other two parents. This finding suggests a potential association between parents' buy-in and their BSP implementation fidelity. Destiny and Evelyn who demonstrated higher buy-in by believing in the PTR-F's and BSP's social validity might have been more committed to implementing BSPs with high fidelity. This could imply that parents are more likely to invest effort in following the BSP when they perceive the intervention as meaningful. Future studies could explore this relationship between social validity and parent's commitment and assess its impact on child outcomes. Furthermore, the variation in social validity ratings between two groups of parents suggests that parents' contextual factors may influence parents' buy-in. As discussed earlier, the qualitative finding indicates that Nora and Alice attributed contextual factors to their low BSP implementation fidelity. It would be valuable to investigate these factors

to understand the specific elements that influence parents' buy-in. Exploring this issue may help develop family-centered PBS interventions that better meet CLD parent's contextual needs.

Contextual Fit of PTR-F and BSP

Navigating multiple contexts of life as a cultural minority, immigrant, and a parent of a child with disabilities have equipped culturally and linguistically diverse (CLD) parents with several strengths, including knowledge of using evidence-based practices, strong self-efficacy, and resilience. Qualitative findings suggest that the PTR-F process was contextually fit for the participants because (1) it enhanced the parents' strengths, (2) Coaching helped participants feel understood, which was critical for establishing a trustful partnership, and (3) PTR-F components, including enhanced relationship-focused activities, supported family practices and values.

The modifications I added to the original PTR-F model were crucial for ensuring PTR-F's cultural responsivity for CLD families. Albeit trust is a foundation for any collaborative relationships, the original PTR-F model leaves practitioners with little guidance around how to build rapport with CLD families and tailor the coaching processes for those who may face contextual complications. Adding relationship-focused activities to the PTR-F process addressed this limitation. Qualitative findings suggest that introducing each other's background at the beginning of the training, one of the modifications made to the original PTR-F model, was particularly crucial for making the PTR-F contextually fit. Parents found this step essential for informing the researcher about their family's overall culture and value, such as the importance of sibling relationship within their family. Though these findings do not allow us to infer that adding a relationship-focused step in the training made the PTR-F more culturally responsive than the original PTR-F model, they do suggest that adding such step could be a meaningful modification for enhancing PTR-F's contextual fit for CLD families.

Another modification made to the original PTR-F model was adding a structured step for examining the contextual fit of the BSP before beginning to implement the BSP. This step aimed to identify and leverage family resources through a structured opportunity. Though not frequently mentioned as an essential component that supported families' culture during PTR-F, a step to discuss family's assets to incorporate in BSP and reflect on available resources allowed the researcher to understand the family's support network and include family's assets in the intervention. For example, Evelyn found during this step that her BSP did not include the support from her husband as an available resource. The researcher was then able to help her specify the husband's support during the intervention in her BSP. Thus, the step to review contextual fit of BSP before starting the intervention was crucial for ensuring that the BSP maximizes the family's capacity to promote positive outcomes by recognizing family resources.

Qualitative findings support that these modifications (i.e., relationship-focused activities and a structured step to review contextual fit during BSP development) were imperative at strengthening the contextual fit of PTR-F by creating structured opportunities to consider family's cultural values and accordingly adapt BSPs. This suggestion explained what PTR-F component CLD parents perceive to be crucial for developing contextually fit interventions that help sustain their cultural assets. PTR-F studies so far have not intentionally explored the perspectives of diverse families to explain what helps them maintain their cultural practices. The current study contributes to expanding the existing literature base by comprehensively assessing CLD families' sociocultural factors and investigating how they affect the effectiveness of PTR-F. This contribution is also significant in that it sheds a light on the voices of CLD families, who have been historically underrepresented in intervention research (Klinger & Boardman, 2011).

Additionally, qualitative findings highlight that researcher's personal skills and attitude, including flexibility, acceptance of imperfections, use of paraphrasing, and attempt to build personal relationships with families, can play a crucial role in building strong relationships with CLD families. This finding is intriguing as these features are the key strategies that mental health counselors use to build trust with their clients. Psychological studies have consistently found that active listening, being empathetic with a non-judgmental attitude, showing genuine interest in client's concern, and being compassionate are crucial for establishing trust between the counselor and the client (Giacco et al., 2020). This resemblance between coaching for CLD parents and counseling psychology implicates that the PTR-F process requires a nuanced approach, rather than merely completing checklists in the guidebook. Furthermore, though the quantitative finding from the contextual fit questionnaire indicated that researcher provided the participants with materials and procedures needed for implementing the intervention, the quantitative study could not capture all the features that the qualitative finding reported as essential for building trust with CLD families. This discrepancy also underscores the importance of facilitator's sophisticated approach for collaborating with CLD families.

Implications for Practice

The modified PTR-F with additional steps to enhance cultural responsivity was contextually fit for CLD families and effective in increasing the parent implementation fidelity of BSP. The steps added to the original PTR-F model provide several implications for practice. First, practitioners should invest time to introduce their background as they initiate PTR-F or other family-centered PBS interventions. This can include sharing their cultural background, their approach for working with families and children, and what they value in teaching children. Sharing the facilitator's background information can help families feel understood and

comfortably share their unique practices and values. Therefore, practitioners can use this step to build trust at the beginning of the PTR-F process. Likewise, it would be helpful for practitioners to intentionally create an opportunity to acquire in-depth information about the family's culture and values. This could involve asking questions about where each parent was born and grew, family's unique tradition or routine, and what they love about their child or family. Qualitative findings suggest that this step supports the facilitator in developing personal connections with the family as well as in incorporating family's important values in their BSP. Furthermore, the current study's findings suggest practitioners to plan to review BSP's contextual fit before starting to implement the plan, rather than evaluating the contextual fit after the intervention ends. Spending time to identify family resources during the planning and implementation stages ensures that the BSP recognizes the family's capacities and cultural assets. Practitioners can make PTR-F culturally responsive and promote positive outcomes by incorporating these considerations into their interventions.

The current study's results also indicate that the PTR-F model can be an efficient and effective way to support CLD families in addressing children's challenging behavior in the home settings. Previous research indicates that most families of young children older than 3 years old with disabilities rarely have access to home-based supports for challenging behaviors because special education services are usually provided in classroom settings (Lucyshyn et al., 2015). The remote delivery of PTR-F can address this issue around service discontinuities for children and families transitioning from Part C to preschool (Congressional Research Service, 2019).

One of contributing factors for efficient and effective implementation of PTR-F was the researcher's flexibility to accommodate families' various needs. For instance, the study occurred at the end of the Pandemic, not long after child participants went back to in-person classrooms

and extracurricular activities. Families were more exposed to viruses and germs from outside than during the middle of the Pandemic, causing frequent cancellations of training and coaching meetings. One parent participant was a single mother working full time, so trainings with her had to be scheduled after 5pm. Overall, the researcher's flexibility to meet these diverse needs was a key contribution to the success and efficiency of the PTR-F process. Thus, practitioners who implement PTR-F or family-centered PBS interventions should be flexible throughout the course of intervention.

Similarly, the researcher's ability to create individualized resources for each family also influenced the effectiveness of the process. The researcher had a skill to use an online graphic design tool (e.g., Canva website) to create personalized materials for each family (visual schedule, personalized social story, calm down cards), which participants found remarkably effective for their children. The researcher also had availabilities to work on individualized resources, such as detailed BSP instructions and translating training materials during non-session hours. The researcher's ability to use non-session hours and skills to utilize various online resources have important implications for home-visiting practitioners. Practitioners should consider the number of clients that they work with because this can affect the quality of service they provide. If a practitioner does not have enough non-session hours or have flexible schedules to offer coaching outside regular office hours, this could affect the effectiveness of PTR-F. It would be also beneficial for practitioners to keep themselves updated with the recent technologies and online resources.

Another implication from this study was the significance of using a nuanced approach during the PTR-F process. In the current study, participants found the overall PTR-F process contextually fit, but still faced challenges due to cultural differences. For example, some

strategies in their BSP conflicted with values from their country of origin. The researcher's coaching style was also unfamiliar to couple of participants who are used to more explicit guidelines for structured instructions from their home countries. To minimize these challenges for CLD families, practitioners should regularly assess the BSP's contextual fit during coaching meetings, rather than at the end of the PTR-R process. It would be also helpful to check in with families about what coaching styles they are familiar with and how they would like to receive feedback. When practitioners follow a manualized behavioral intervention model like PTR-F, it is easy to focus on helping parents practice certain strategies with the same quality as a practitioner or a teacher. However, this should not be the focus of parent-implemented behavioral interventions for CLD families. Practitioners should pause, pay attention to parents' stories, and ask how families would like to use the strategies in their home. They should also be careful when they define implementation fidelity for coaching to make their coaching contextually fit for each family.

Limitations and Implications for Research

This research study included several limitations. First, the generalizability of study findings is limited due to the small sample size. To compensate this limitation, I gathered comprehensive demographic data of participants, which informs how the results could be helpful for diverse sample. Second, the study did not collect any generalization data after the final coaching session with the families. Though couple families mentioned that they used the BSP strategies outside the target routine, no observable and measurable data is available regarding whether the families used the BSP strategies in other routines or settings outside their homes.

Furthermore, I used the nonconcurrent multiple baseline design in the quantitative phase of the study. Though nonconcurrent designs are known to be less rigorous than concurrent

designs, I selected a nonconcurrent design for its practical advantages. With COVID-19's remaining impact, the recruitment of CLD families was particularly challenging. Given that parents who were interested in this study needed support around their children's persistent challenging behavior, it was more appropriate to begin the intervention as soon as possible for those families than waiting to recruit all four participants. Additionally, recent research has reported that nonconcurrent designs can be as rigorous as concurrent designs if each tier's baseline phase is different in the number of days and the number of sessions and if phase changes happen with sufficient lag between each tier (Slocum et al., 2022). Therefore, in the current study, coders collected challenging behavior data for the pre-determined number of baseline sessions for each participant unless the data trend seemed highly variable during the baseline condition.

One complication that this design could reveal is that it can be difficult to wait for data points for behaviors to stabilize within the pre-determined number of baseline sessions. For example, Mason's challenging behaviors were quite variable during baseline. It would have been ideal if Mason could start intervention after his fifth session, but he remained in the baseline condition because his pre-determined number of sessions were eight. His challenging behavior showed a decreasing trend with some variability from the sixth to eighth sessions, but the researcher decided to make a phase change because this would require extended participation for both Mason's and Andy's families.

The last limitation in this study was the low level of child challenging behaviors. Despite parents' report during the screening process that children's challenging behaviors happen at least three times a week, the level of challenging behaviors that the research team observed did not match the level of challenging behaviors that the parents reported. The percentage intervals of

challenging behaviors for most children stayed below 20% throughout the study with a few exceptions. This discrepancy can be explained in several ways. First, children's challenging behaviors might have changed quickly due to external factors. For example, at the time of recruitment Molly's challenging behaviors were so persistent and severe that the school recommended the placement change. Nora's perceived level of Molly's frequent challenging behaviors might have been significantly higher during the screening call than during the study. In fact, Molly changed her school to a special education program at the beginning of the baseline condition, and Nora reported that Molly liked the new school where she could get more one-on-one attention.

Another reason for the discrepancy in challenging behaviors could be an imprecise way to represent the severity of challenging behaviors on the graph. If a child consistently engaged in challenging behaviors for more than 30% of a 15-minute daily routine, it would be extremely stressful for the parent to the extent that they may not have the capacity to record a video or even participate in a research project. Engagement in challenging behaviors for 10-20% of a 15-minute daily routine may look trivial on the graph, yet it could be an accurate representation of severity that is stressful enough for parents. Therefore, future studies may use a different way to represent the severity of challenging behavior on the graph, such as setting the maximum point of y-axis as the highest percentage of challenging behaviors observed during the baseline condition.

The current study's findings as well as limitations reveal several implications for future research studies. It is critical to continue examining the PTR-F's effectiveness with diverse families of young children with disabilities. Future studies may examine the intervention's effectiveness with younger children's families or families with varying socioeconomic statuses.

Recruiting families from diverse cultural backgrounds and different socioeconomic statuses requires flexibility and various accommodations for families. It took more than a half year to recruit four CLD parents of a child with disabilities. Culturally diverse families often face multiple challenges regarding time and resource for research participation. This partially explains the gap in research around studies with culturally diverse families. Researchers should explore what prevents culturally diverse families from participating in research and evaluate different methods to accommodate their needs in research. It would be also crucial for researchers to build collaborative relationships with the community members ahead of time by providing services they need so that culturally diverse communities would find it easier to access research opportunities. Additionally, while keeping the rigor of study, researchers should be flexible to accommodate varying needs of diverse families. I changed my single case research design from concurrent multiple baseline to nonconcurrent multiple baseline to prevent families from waiting for a long time and dropping out. Finding as much resource as possible, such as finding a coder who speaks multiple languages, could also help conducting more studies with culturally diverse families.

In addition, researchers should examine whether the parent's acquired skills or child desirable behaviors generalize to non-target routines and settings. Lastly, the current study did not involve experimental intervention to determine which PTR-F modification or coaching strategy caused changes in child challenging behavior or parent implementation fidelity. Future studies could manipulate different intervention modifications or coaching components to understand the essential components to include in the PTR-F process.

Conclusion

The modified PTR-F process led to CLD parents implementing their BSPs with an improved level of implementation fidelity, and the parent implementation of BSPs were functionally related to decreases in their children's challenging behaviors. Moreover, the findings from mixed methods study demonstrated that CLD families are satisfied with the changes in their children's behavior and family's quality of life after participating in the PTR-F process. By shedding a light on the perspectives of CLD families toward the PTR-F process through the mixed methods design, this study highlighted that PTR-F is culturally responsive.

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Appendix A

Sample Data Collection Form for Behavior Support Plan-Implementation Fidelity

Data Collection Form_Parent Behavior

Session: ________________________ **Primary or IOA: ___________________**

Coder: _________________________ **Score: ____________________________**

Please use the following rating scale to capture the behavior of the TARGET parent participant in relation to the TARGET child only.

	Prevent Behavior	Definition	Intervals to Code		Score	Score out of 1	IOA
Prevent behaviors should only be coded if they did not BEGIN directly following (within 10s of) the target child engaging in challenging behavior. Consider the OFFSET of the challenging behavior and the ONSET of the parent behavior in making coding decisions.							
1.	**Frequent positive attention and behavior-specific praise**	Parent provides positive attention in the form of either verbal statements or physical affection.	0:00 – 0:59	+ -	**/15** (Total +) / (+ and -)		
			1:00 – 1:59	+ -			
			2:00 – 2:59	+ -			
			3:00 – 3:59	+ -			
			4:00 – 4:59	+ -			
			5:00 – 5:59	+ -			
			6:00 – 6:59	+ -			
			7:00 – 7:59	+ -			
			8:00 – 8:59	+ -			
			9:00 – 9:59	+ -			
			10:00 – 10:59	+ -			
			11:00 – 11:59	+ -			
			12:00 – 12:59	+ -			
			13:00 – 13:59	+ -			
			14:00 – 15:00	+ -			
2.	**Predictable schedules**	Parent uses language or visuals to prepare the	+ or -		1 or 0		

		child for **upcoming** events, activities, or tasks.				

3.	**Provide choices within activity**	Parent verbally or physically (e.g., holds out items) presents the child with a choice of at least 2 items or activities. None of the choice selections may be punitive in nature (e.g., time-out; removal of preferred items).	+ or -	1 or 0	
4.	**Clearly state behavior expectations**	Parent verbally states or gestures to visuals of at least 2 behaviors the child may engage in. This includes reading a social story.	+ or -	1 or 0	

	Teach Behavior	**Definition**	**Score criteria**	**Final Score**	**IOA**
In coding teach behaviors, consider the family-specific function (which will be notified to coders or can be found in the family target behaviors document). Additionally, teach behaviors should not BEGIN directly following (within 10s of) the OFFSET of an instance of challenging behavior.					
5.	**Establish a Teaching Opportunity**	Parent clearly establishes an opportunity for child to engage in function-based replacement skill ***AND*** prompts child (e.g., wait prompt, open question prompt, model prompt, verbal prompt, gestural prompt, physical prompt) to engage in skill if they do not do so independently.	+ or -	1 or 0	
6.	**Reinforce**	**Reinforce behaviors are codeable ONLY following successful established teaching opportunities.** Parent provides preferred item (or does not provide aversive item) following child's use of or attempt to use an appropriate function-based replacement skill.	+ or -	1 or 0	

	Response	Definition	Time	Any CB?	Parent Strategy?	Final Score	IOA
The list of new response strategies can be found below. Before coding, ensure you have been given the appropriate list of new responses for this family by your unblind coordinator.							
7.	**Behavior *following* challenging behavior**	For each interval, indicate whether challenging behavior was present '+' or absent '-' AND if the parent used an appropriate new response strategy '+'. *Circle '-' if CB occurs and parent does not use appropriate strategy and NO if no CB occurs.*	0:00 – 0:59	+ -	+ - NO	/ *(+ in PS)* / *(+ in CB)*	
			1:00 – 1:59	+ -	+ - NO		
			2:00 – 2:59	+ -	+ - NO		
			3:00 – 3:59	+ -	+ - NO		
			4:00 – 4:59	+ -	+ - NO		
			5:00 – 5:59	+ -	+ - NO		
			6:00 – 6:59	+ -	+ - NO		
			7:00 – 7:59	+ -	+ - NO		
			8:00 – 8:59	+ -	+ - NO		
			9:00 – 9:59	+ -	+ - NO		
			10:00 – 10:59	+ -	+ - NO		
			11:00 – 11:59	+ -	+ - NO		
			12:00 – 12:59	+ -	+ - NO		
			13:00 – 13:59	+ -	+ - NO		
			14:00 – 15:00	+ -	+ - NO		

	List of New Response Strategies	
F5	**Prompt follow-through**	Ensure the child follows through with the transition or the demand using hand-over-hand prompting if needed
F3	**Withhold item**	Do not give item until the child appropriately asks for it
F1	**Avoid attention to behavior**	Avoid attending to the problem behavior, while making sure the child is safe
F1	**Withhold attention**	Withhold providing attention to the child until the child is calm and appropriately asks for it
F2	**One verbal reminder**	Provide one verbal reminder of the replacement or appropriate skill. If the parent provides more than one reminder – do not give credit.
F2	**Help once calm**	Help the child once s/he is calm and not engaging in problem behavior
F4	**Withhold new activity**	Withhold the preferred activity until the child appropriately asks for it
F5	**Avoid changing activity**	Avoid delaying/changing the activity and ensure the child completes the activity or demand using hand-over-hand prompting if needed

IOA: **_______/ 35 = _____%** **agreements / (agreements + disagreements)**	**Score:** *(please also record at top)* **__/ 7 = _____%**

Appendix B

Data Collection Form for Child Challenging Behaviors

Data Collection Form_Child Behavior

Session number: Coder: Primary or IOA:

Partial Interval Recording (10s)								
Time	**CB**	**Note**	**Time**	**CB**	**Note**	**Time**	**CB**	**Note**
0:00 – 0:09	+ — UNC		5:00 – 5:09	+ — UNC		10:00 – 10:09	+ — UNC	
0:10 – 0:19	+ — UNC		5:10 – 5:19	+ — UNC		10:10 – 10:19	+ — UNC	
0:20 – 0:29	+ — UNC		5:20 – 5:29	+ — UNC		10:20 – 10:29	+ — UNC	
0:30 – 0:39	+ — UNC		5:30 – 5:39	+ — UNC		10:30 – 10:39	+ — UNC	
0:40 – 0:49	+ — UNC		5:40 – 5:49	+ — UNC		10:40 – 10:49	+ — UNC	
0:50 – 0:59	+ — UNC		5:50 – 5:59	+ — UNC		10:50 – 10:59	+ — UNC	
1:00 – 1:09	+ — UNC		6:00 – 6:09	+ — UNC		11:00 – 11:09	+ — UNC	
1:10 – 1:19	+ — UNC		6:10 – 6:19	+ — UNC		11:10 – 11:19	+ — UNC	
1:20 – 1:29	+ — UNC		6:20 – 6:29	+ — UNC		11:20 – 11:29	+ — UNC	
1:30 – 1:39	+ — UNC		6:30 – 6:39	+ — UNC		11:30 – 11:39	+ — UNC	
1:40 – 1:49	+ — UNC		6:40 – 6:49	+ — UNC		11:40 – 11:49	+ — UNC	
1:50 – 1:59	+ — UNC		6:50 – 6:59	+ — UNC		11:50 – 11:59	+ — UNC	
2:00 – 2:09	+ — UNC		7:00 – 7:09	+ — UNC		12:00 – 12:09	+ — UNC	
2:10 – 2:19	+ — UNC		7:10 – 7:19	+ — UNC		12:10 – 12:19	+ — UNC	
2:20 – 2:29	+ — UNC		7:20 – 7:29	+ — UNC		12:20 – 12:29	+ — UNC	
2:30 – 2:39	+ — UNC		7:30 – 7:39	+ — UNC		12:30 – 12:39	+ — UNC	
2:40 – 2:49	+ — UNC		7:40 – 7:49	+ — UNC		12:40 – 12:49	+ — UNC	
2:50 – 2:59	+ — UNC		7:50 – 7:59	+ — UNC		12:50 – 12:59	+ — UNC	
3:00 – 3:09	+ — UNC		8:00 – 8:09	+ — UNC		13:00 – 13:09	+ — UNC	
3:10 – 3:19	+ — UNC		8:10 – 8:19	+ — UNC		13:10 – 13:19	+ — UNC	
3:20 – 3:29	+ — UNC		8:20 – 8:29	+ — UNC		13:20 – 13:29	+ — UNC	
3:30 – 3:39	+ — UNC		8:30 – 8:39	+ — UNC		13:30 – 13:39	+ — UNC	
3:40 – 3:49	+ — UNC		8:40 – 8:49	+ — UNC		13:40 – 13:49	+ — UNC	
3:50 – 3:59	+ — UNC		8:50 – 8:59	+ — UNC		13:50 – 13:59	+ — UNC	
4:00 – 4:09	+ — UNC		9:00 – 9:09	+ — UNC		14:00 – 14:09	+ — UNC	

4:10 – 4:19	+ — UNC		9:10 – 9:19	+ — UNC		14:10 – 14:19	+ — UNC	
4:20 – 4:29	+ — UNC		9:20 – 9:29	+ — UNC		14:20 – 14:29	+ — UNC	
4:30 – 4:39	+ — UNC		9:30 – 9:39	+ — UNC		14:30 – 14:39	+ — UNC	
4:40 – 4:49	+ — UNC		9:40 – 9:49	+ — UNC		14:40 – 14:49	+ — UNC	
4:50 – 4:59	+ — UNC		9:50 – 9:59	+ — UNC		14:50 – 14:59	+ — UNC	
Total Score	**____ / 90*100 = _____**							

*** A codebook that lists behavior definitions, examples, and non-examples is available for reference. Behavior definitions may vary per family based on their behavior support plan.**

Appendix C

Operational Definitions of Challenging Behaviors

CHALLENGING BEHAVIOR

Challenging behavior is defined as behavior that interferes with the child's meaningful engagement in his/her environment or social interactions. Common behavior topographies include physical aggression, verbal aggression, tantrumming, refusal to follow directions, and elopement. For this study, repetitive or self-stimulatory behaviors that do not meet other criteria below will not be coded as challenging.

10-s partial interval recording will be used to capture the estimated frequency of challenging behavior. **For each interval, indicate the presence or absence of challenging behavior**. Any behavior that begins in one interval and continues into another should be marked in both (or all) intervals. **For the purpose of this study, consider the target child and interactions with the target parent *only*.**

The following is a list of operationalized definitions for common challenging behaviors. Use this list to aide you in coding each interval. For all behaviors, consider the context. For example, a child appropriately kicking a ball in the context of play WOULD NOT be a challenging behavior (code as "0"); a child kicking a truck when given the direction "Please clean up" WOULD be a challenging behavior (code as "CB").

Code any interval "UNC" (uncodable) if **both** of the following conditions are met:

1. Child is off-screen for the entire interval **AND**
2. No auditory input present at any point during the interval that *clearly* indicates CB

Examples:

- Code interval as UNC if child is screaming when on-screen, then moves off screen and stops screaming for entirety of subsequent interval(s)
- Code interval as UNC if child is playing (with no CB) and moves off screen for subsequent interval(s)

Non-example:

- Code as CB if child is screaming when on-screen, then moves off screen, continuing to scream into subsequent interval(s)

CHALLENGING BEHAVIORS		**Examples**	**Non-examples**
Physical aggression toward objects			
Pounding objects on surface	Two or more forceful contacts (e.g., object pushed toward surface from at least 6 inches away from the surface and brought quickly toward it) with an object on a surface (e.g., table, floor, wall), with no more than 2 s between contacts, with the object remaining in the child's hand.	Child bangs empty cup on the table repeatedly after asking for more milk.	Child bangs toy hammer on table to "fix the broken leg."
Throwing objects forcefully	An object forcefully (i.e., requiring a "pulling-back" motion of the arm) projected from a child's hand. Can be toward a person or not.	Child is told "No," to a request and she throws a toy across the room.	Child is cleaning up toys and tosses a toy into the toy bin.
Destroying objects or property	Any inappropriate use of objects or property that has the potential to harm them (e.g., knocking off surfaces, pulling off walls, kicking, punching, shredding, ripping, biting, breaking, etc.).	Child swipes a knick-knack off the shelf forcefully and the object hits the floor and breaks.	Child is reaching for high book on shelf and knocks off a knick-knack that breaks.
Physical aggression toward others		**Examples**	**Non-examples**

Pinching	Using pointer finger and thumb to forcefully squeeze the body or clothing of another.	Child uses pointer and thumb to squeeze brother's arm until he crys out.	Child pinches his brother's shirt and brings it toward him, saying, "I'm trying to see the picture on your shirt!"
Hitting (pushing, punching, slapping)	Forceful physical contact with hand or body (i.e., requiring a "pulling-back" motion of the body part) to the body or clothing of another.	Child walks up to sister and forcefully bangs into her with her side body.	Child walks up to sister, trips, and falls on her knocking her over.
Biting	Closing teeth with the body or clothing of another within them; does not need to be forceful.	Child is told "No," by Dad, walks up to him, and latches on to dad's leg with his mouth.	Child and friend are playing dentist, and child closes mouth on friend's hand before she's had time to remove it.
Spitting	Release of gob (sufficient to see and more than that projected from talking) of saliva that is forcefully projected toward another person.	Child forcefully releases saliva in direction of brother.	Child lets saliva slowly drip onto the table and starts to play in it.
Kicking / Stomping	Forceful physical contact with foot (i.e., requiring a "pulling-back" motion of the leg) to an object or part of a body of another.	Child walks up to family dog and stomps on dog's tail.	Child walks by family dog and accidentally steps on dog's tail.
Hair-pulling	Forceful pulling (i.e., requiring a clear pulling away motion of the hand or arm from head)—either downwards or outwards—of the hair of another person.	Child's sister won't share desired toy and child pulls sister's hair forcefully.	Child is brushing sister's hair and sister cries out, "Oww! It's tangled!"
Taking toys/items away forcefully	Pulling toys or items forcefully (i.e., rapidly and/or using a "pulling-away" motion) from another person without permission.	Child is told he cannot play with the iPad and he grabs it from his mom.	Child is told he can play with the iPad and grabs for it forcefully.
Scratching	Forcefully (i.e., rapidly and/or using a "digging-in" motion) "raking" fingernails across the body or clothing of another.	Child is told to clean up and forcefully rakes fingers across parent's arm.	Child is "ticking" parent using tips of fingers.
Grabbing	Forcefully grasping a person's body parts with a sudden motion or a firm grip. (Or an attempt to do so.)	Child is interrupted by a sister during play and forcefully grasp her arms with a firm grip.	Child tries to hold hands of a sister or takes a toy from her open hand.
Verbal aggression		**Examples**	**Non-examples**
Inappropriate demands	Requests that are aggressive in tone or persist within 10 seconds after being told "No". P17: If mom said "no" to her specific demand one time during the entire video, any persistent demand after that "NO" would count as inappropriate demands.	Child says "Give it to me now."	Child is told "No" following a request. She repeats the request 30 s later.

Yelling or screaming	Vocal output that is notably louder than that of the child's loudest typical conversational level. Do not code output communicating excitement (e.g., "Woohoo") or play schemes.	Child is told it is bedtime and loudly emits a piercing wail.	Child is playing "Dinosaur" and stomps around the room loudly roaring. Child whining
Calling others names or bad words	Directing negative terms (e.g., "Bad mommy!" "F_ _ _ you,") towards another person (the person does not have to be present).	Child tells sibling, "You're ugly."	Child tells sibling, "You're being mean."
Talking negatively about self	Using negative terms (e.g., bad, wrong, ugly, etc.) to describe oneself or one's actions.	Child says "I broke it. I'm a bad boy."	Child says "I don't know how to do this."
Threatening others / Negative sentiments	Any statement of intention to inflict pain, injury, damage, take away something (affection) or other hostile action on another person.	Child is told "No" by parent and child says "I hate you."	Child is playing with Army figures and the "bad guys" tell the "good guys" they are going to kill them.
Tantrumming		**Examples**	**Non-examples**
Flopping / Flailing	Thrashing and throwing oneself around, by moving arms and legs in a manner inconsistent with purposeful ambulation. Can be standing, sitting, on the floor, etc. Do not count any instances that occur as part of a play sequence (e.g., dancing).	Child's toy is taken away. He falls to the floor and begins to throw arms and legs around wildly.	Child is given favorite snack and begins to jump and swing arms wildly around.
Crying	Loud, disruptive, or excessive crying that does not appear to be appropriate given the context.	Child is told to stop grabbing for a toy and he begins to cry.	Child begins to cry after banging her head.
Refusal to follow directions		**Examples**	**Non-examples**
Adult direction has to be a clear statement about what behavior the adult expects the child to do. Questions do not count as a direction. Example: "Lay down and close your eyes." "Say HELP" "Give me X." Non-example: "It's time to go to bed." "Can you say HELP?" "Do you have X?"			
Elopement	Moving away from parent or a task (for a total distance of 10 or more feet, without evidence the moving away is to comply) when a directive was stated to do otherwise. If the child moves out of the video when given a directive (and the required task remains in the video), code.	Child runs to bedroom when parent says "It's time for dinner."	Parent says "It's time for dinner" and child runs to bathroom, saying "Ok, let me wash my hands!"
Verbal refusal to follow directions	A verbal refusal (e.g., "No," "I don't want to," "Not right now," etc.) to comply with a directive that is emitted within 5 s of being given one.	Parent asks child to turn of the TV and child replies, "When my show is over."	1. Parent asks child if she wants a snack and child replies, "Not right now." 2. Child whines or shakes head to the directive.

Ignoring or not responding to request	A failure to begin response to a directive ***within 10 s of the end of the parent's directive***. Responding can either communicating (using words, pictures, signs, or physical signals such as nodding head) or by beginning to comply with directive. If multiple directives within 3s latency of each other, count from last directive given by target parent. ** P9: A directive given when the child is more than 5 feet away from mom or when the child is focusing on a different material or an activity does not count as a directive unless the directive is related to stop the activity or to gain attention from the child. (Added March 5th, 2023)	Parent asks child to take off his shoes, and he has not responded or begun to do so within 10 s.	Parent asks child to take off his shoes, and after 5 s he sits down and tries to untie his laces.
Other		**Examples**	**Non-examples**
Other challenging behavior	Any clearly challenging behavior not captured by this code.	Climbing on furniture, slamming sibling's fingers in cabinet, self-inflicted emesis	Self-stimulatory behavior, object mouthing, exploratory play
Banging one's head (P16)	Pulling back one's head and banging it onto a soft surface, such as a couch or cushion.	Sister takes away the child's toy. The child runs towards a couch and hits the couch with his head.	There is no clear antecedent. Child plays alone and starts banging his head onto the couch.
Whining (P16)	Not loud, but Low-toned, crying-like, unintelligible vocalizations that does not appear to be appropriate given the context (e.g., when the child's request has been denied, when they are scolded by parents, when they want something)	Child wants to stay outside, but parents take him inside. He begins to whine with low-toned vocalizations.	Child trips over the stairs and starts whining.

Appendix D

PTR-F Goal Sheet

PTR-F Goal Sheet

Instructions:

1. Identify and write out the child's challenging behaviors to decrease and the contexts or routines where these behaviors need to improve.
2. Select ONE challenging behavior to target within family contexts or routines.
3. Operationally define this target behavior—observable (seen or heard) and measurable (counted or timed).
4. Identify and write out the child's desirable behaviors to increase.
5. Select target desirable behavior (to be completed following PTR-F assessment).
6. Operationally define the desirable behavior (to be completed following PTR-F assessment).

Child: ______________________ **Date:** ____________

	Goals: Challenging behaviors	
	Behaviors	*Context/routines*
Challenging behaviors to decrease		
Target behavior		
Operational definition		
	Goals: Desirable behaviors	
Desirable behaviors to increase		
Target behavior	(to be completed following PTR-F assessment)	
Operational definition	(to be completed following PTR-F assessment)	

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Appendix E

PTR-F Assessment Checklists

PTR-F Assessment Checklist: Prevent

Challenging behavior: ________ Person responding: ________ Child: ________

1. Are there times of the day when challenging behavior is most likely to occur?
   If yes, what are they?

___ Waking up	___ Before meals	___ During meals	___ After meals	___ Preparing meals
___ Morning	___ Afternoon	___ Nap time	___ Evening	___ Bedtime

Other: ________

2. Are there specific activities when challenging behavior is very likely to occur?
   If yes, what are they?

___ Leaving home	___ Nap time	___ Interactions with sibling/child	___ Taking medicine
___ Arriving home	___ Toileting/diapering	___ Indoor play	___ Medical procedure
___ Family celebrations	___ Bathing	___ Outdoor play	___ At doctor or therapist
___ Church/religious activities	___ Toothbrushing	___ Meals	___ At dentist
___ Looking at books	___ Play group/classes	___ In the car/bus	___ Children's attractions (e.g., zoo)
___ Watching television/ device	___ Eating out	___ At a store	___ Transitions (specify): ________
___ Special event (specify): ________	___ Visiting others	___ Park/playground	
	___ Snack		

Other: ________

3. Are there other children or adults whose proximity is associated with a high likelihood of challenging behavior? If so, who are they?

___ Siblings	Specify: ________	___ Parent
___ Family member(s)	Specify: ________	___ Other children
___ Care provider(s)	Specify: ________	(specify): ________
___ Other adults	Specify: ________	

Other: ________

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FORM 4 **PTR-F Assessment Checklist: Prevent** *(continued)*

4. Are there times of the day when challenging behavior is least likely to occur?
If yes, what are they?

___ Waking up ___ Morning	___ Before meals ___ Afternoon	___ During meals ___ Nap time	___ After meals ___ Evening	___ Preparing meals ___ Bedtime

Other: ______________________________

5. Are there specific activities when challenging behavior is least likely to occur?
What are they?

___ Leaving home ___ Arriving home ___ Family celebrations ___ Church/religious activities ___ Looking at books ___ Watching television/ device ___ Special event (specify): ________	___ Nap time ___ Toileting/diapering ___ Bathing ___ Toothbrushing ___ Play group/classes ___ Eating out ___ Visiting others ___ Snack	___ Interactions with sibling/child ___ Indoor play ___ Outdoor play ___ Meals ___ In the car/bus ___ At a store ___ Park/playground	___ Taking medicine ___ Medical procedure ___ At doctor or therapist ___ At dentist ___ Children's attractions (e.g., zoo) ___ Transitions (specify): ____________

Other: ______________________________

Additional comments not addressed:

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PTR-F Assessment Checklist: Teach

Challenging behavior: ________________ Person responding: ________________ Child: ________________

1. What communication skill(s) (using words, pictures, signs, augmentative systems) could the child learn in order to reduce the likelihood of the challenging behavior occurring in the future?		
____ Asking for a break ____ Asking for help ____ Requesting wants and needs	____ Expressing emotions (e.g., frustration, anger, hurt) ____ Expressing aversions (e.g., "No," "Stop")	____ Expressing preference when given a choice (e.g., "Yes, I like that," "I want the ____ one.")
Other: ______________________		

2. What social skill(s) could the child learn in order to reduce the likelihood of the challenging behavior occurring in the future?		
____ Getting attention appropriately ____ Sharing—giving a toy ____ Sharing—asking for a toy ____ Taking turns ____ Beginning interactions with peers and adults ____ Responding to or answering peers and adults	____ Staying on topic with peers and adults in a back-and-forth exchange ____ Offering a play idea ("You be the mommy") ____ Playing appropriately with toys and materials with peers	____ Accepting positive comments and praise ____ Making positive comments ____ Giving praise to peers ____ Waiting for acknowledgment or reinforcement ____ Skills to develop friendships
Other: ______________________		

3. What problem-solving skill(s) could the child learn in order to reduce the likelihood of the challenging behavior occurring in the future?		
____ Controlling anger ____ Controlling impulsive behavior ____ Strategies for calming down ____ Asking for help ____ Using visuals to support independent play	____ Self-management ____ Playing independently ____ Playing cooperatively ____ Following directions ____ Following schedules and routines ____ Accepting "no" ____ Managing emotions	____ Getting engaged in an activity ____ Staying engaged in activities ____ Choosing appropriate solutions ____ Making choices from appropriate options ____ Following through with choices
Other: ______________________		

Additional comments not addressed:

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PTR-F Assessment Checklist: Reinforce

Challenging behavior: ____________ Person responding: ____________ Child: ____________

1. What consequence(s) usually follow your child's challenging behavior?

___ Sent to time out ___ Sent to bedroom ___ Sent to quiet spot/corner ___ Given personal space ___ Delay in activity ___ Activity changed ___ Activity ended ___ Removed from activity	___ Calming/soothing ___ Talk about what just happened ___ Spanking ___ Assistance given ___ Verbal warning ___ Verbal redirect ___ Verbal reprimand/scolding ___ Review house rules ___ Physical guidance ___ Sibling/peer reaction ___ Physical restraint	___ Gets desired item/toy/food ___ Gets access to desired activity Other:

2. What is the likelihood that privileges or preferred items/activities are removed from your child following your child's challenging behavior?

______ Very likely	______ Sometimes	______ Seldom	______ Never

3. What is the likelihood of your child's challenging behavior resulting in acknowledgment (e.g., reprimands, corrections, restating house rules) from adults and children?

______ Very likely	______ Sometimes	______ Seldom	______ Never

4. Does the challenging behavior seem to occur in order to gain attention from other children (e.g., siblings, peers)?

___ Yes *List specific children* ____________
___ No

5. Does the challenging behavior seem to occur in order to gain attention from adults?

___ Yes *List specific adults* ____________
___ No

6. Does the challenging behavior seem to occur in order to obtain objects (e.g., toys, games, materials, food) from other children or adults?

___ Yes *List specific objects* ____________
___ No

7. Does the challenging behavior seem to occur in order to delay a transition from a preferred activity to a nonpreferred activity?

___ Yes *List specific transitions* ____________
___ No

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FORM 6 **PTR-F Assessment Checklist: Reinforce** *(continued)*

8. Does the challenging behavior seem to occur in order to terminate or delay a nonpreferred (e.g., difficult, boring, repetitive) task or activity?

____ Yes *List specific tasks or activities* ____________________
____ No

9. Does the challenging behavior seem to occur in order to get away from a nonpreferred child or adult?

____ Yes *List specific children or adults* ____________________
____ No

10. What is the likelihood of your child's appropriate behavior (e.g., participating appropriately, cooperating, following directions) resulting in acknowledgment or praise from adults or children?

________ Very likely	________ Sometimes	________ Seldom	________ Never

11. Does your child enjoy praise from adults and children? Does your child enjoy praise from some people more than others?

____ Yes *List specific people* ____________________
____ No

12. What items and activities are most enjoyable to the child? What items or activities could serve as special rewards?

____ Social interaction with adults ____ Physical interaction with adults (rough-housing, tickle, cuddle) ____ Social interaction with siblings/peers ____ Playing a game ____ Parent helper ____ Extra time outside ____ Extra praise and attention from adults ____ Extra time in preferred activity	____ High fives ____ Praise from adults ____ Praise from siblings/other kids ____ Music ____ Puzzles ____ Books ____ Special activity ____ Special helper ____ Computer time ____ Television time	____ Small toys, prizes (e.g., stickers, stamps) ____ Device time (e.g., tablet, electronic game system) ____ Art activities (e.g., drawing pictures, painting) ____ Objects/toys: (specify) ________ ____ Food: (specify) ________

Other: ____________________

Additional comments not addressed:

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Appendix F

PTR-F Assessment Summary Table

PTR-F Assessment Summary Table

Child: ______________________ **Date:** ____________

Challenging behavior:	
1. PREVENT	**2. REINFORCE**
3. Hypothesis statement: When ______________ then ______________; as a result ______________.	
Desirable behavior:	
4. PREVENT	**5. REINFORCE**
6. TEACH	

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Appendix G

Example BSP

PTR-F Behavior Support Plan Summary

Child: Jake____________________ Date: 12/4/2022________

Practices for all children:

- ❑ Provide high rates of positive attention.
- ❑ Establish and maintain predictable daily schedules.
- ❑ Include consistent patterns of activities within daily routines.
- ❑ Define behavioral expectations and difference between desirable and challenging behavior.

Hypothesis statement: WHEN Jake wants an item that sister has, THEN he will push or hit sister, and AS A RESULT, he will have access to the item he wants.

Intervention strategies:

	Prevent	Teach	Reinforce
Strategies	• Enhance predictability with visual schedules • Use timer for added structure • Social story about how to appropriately ask for an item or his turn.	1. Appropriately ask for what he wants during play with his sister.	All plans must: 1. Identify valued, functional reinforcer(s) 2. Provide reinforcer for desirable behavior 3. Remove reinforcement for challenging behavior
Brief description	1. Show "Story time" on the schedule. 2. Read the social story. 3. Show "Play time" on the schedule. Start timer. 4. Remind the reinforcement: "When you ask nicely, you will get a token. When you have 3 tokens, you will get a video time or villain sticker. What do you want, video or sticker?" 5. When Jake starts having trouble with his sister, remind expectations: "Remember, when you want something, say "Can I have a turn?" and use timer" 6. When Jake appropriately asks for what he wants, follow **Reinforce Step 2.** 7. If Jake does not appropriately ask for what he wants, follow **TEACH Step 3—5.** 8. When timer goes off, show the visual schedule. 9. Give him choices for the next activity.	1. Remind expectations: "Remember, when you want something, say "Can I have a turn?" and use timer". 2. Jake start playing with his sister. 3. When Jake seems to be on edge, ask "what do you say?" 4. Wait 5 seconds to respond. a. If Jake appropriately asks for the item/turn, follow **Reinforce Step2.** **b.** If Jake hits his sister, follow **Reinforce Step 3.** c. If Jake does not respond after 5 second, give him a timer and say "Say "can I have a turn?"". 5. Repeat until the Play time ends.	1. Select preferred video time or villain stickers for the day. Keep them out of reach. 2. When Jake appropriately asks for an item or a turn, give a descriptive praise AND have him put a token on the token board. 3. If Jake shows challenging behavior, ignore his challenging behaviors while blocking him. DO NOT give him the item he wants. When he's calm, remind him "use your words."
Implementation notes	Materials needed: Social story; Visual schedule; Timer; Toys (to be shared with his sister) Descriptive praise example: • "Great job following the schedule!" • "I like it when you listen to my words!"	Materials needed: toys, games to play, token board, stickers, timer Estimated play time: 10 minutes Waiting time for a turn: 30 seconds (gradually increase by 5 seconds to 2 min.)	Materials needed: token board, stickers, computer with video. Descriptive praise example: • "Great job using your words!" • "I love it when you ask what you want nicely like that!"

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Appendix H

Post-Intervention Survey

PTR-F Participant survey

Start of Block: Introduction

Intro **Survey: Social Validity and Contextual Fit of the PTR-F** This survey is for studying the social importance and acceptability of Prevent Teach and Reinforce for Families (PTR-F) process and outcomes. I also would like to understand how well the behavior support plan and intervention strategies matched your family's priorities, values, and strengths. Your participation in this survey will help researchers and practitioners learn how to improve the intervention's efficiency and effectiveness.

Participant number Please indicate your unique family ID number (ID number can be found on your family manual or contact Gounah gounahch@uw.edu).

____

End of Block: Introduction

Start of Block: Child Information

Child Information **Please answer the following questions about <u>your child who you focused during the PTR-F process.</u>**

Q1 When was your child born?

○ Month/Year (MM/YYYY) ____

Q2 What is your child's gender?

- ○ Male
- ○ Female
- ○ Gender Neutral
- ○ Non-binary
- ○ Other

Q3 Which group most accurately describes your child's race?

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Pacific Islander
- ☐ White or European American
- ☐ Multi-racial
- ☐ Other (Write in) ____
- ☐ I prefer not to answer.

Q4 Which group most accurately describes your child's ethnicity?

- ○ Hispanic or LatinX
- ○ Not Hispanic or LatinX
- ○ I prefer not to answer

Q5 Does your child have an Individualized Education Plan (IEP)?

- ○ Yes
- ○ No

Page Break

Display This Question:

If Does your child have an Individualized Education Plan (IEP)? = Yes

Q5-2 What is your child's diagnosis or IEP eligibility category?

____

Q6 Does your child receive any of the following services? (check all that apply)

- ☐ Behavior consultant/therapist
- ☐ Psychologist
- ☐ Social worker
- ☐ Speech-Language Pathologist
- ☐ Occupational therapist
- ☐ Physical therapist
- ☐ Developmental therapist
- ☐ Research study support staff
- ☐ Pediatrician
- ☐ Child care provider or preschool teacher
- ☐ Other - Write in: ____
- ☐ Non of these services

Page Break

Q7 Have you received professional support specifically to support you and your child's challenging behavior?

- Yes
- No

Display This Question:

If Have you received professional support specifically to support you and your child's challenging b... = Yes

Q7-2 By or From whom did you receive help? (Indicate any that apply)

- ☐ My child's classroom teachers
- ☐ Behavior consultant/therapist
- ☐ Psychologist
- ☐ Social worker
- ☐ Speech-Language Pathologist
- ☐ Occupational therapist
- ☐ Physical therapist
- ☐ Developmental therapist
- ☐ Research study support staff
- ☐ Pediatrician
- ☐ Child care provider or Preschool teacher
- ☐ Other - Write in: ____

Page Break

End of Block: Child Information

Start of Block: Parent Information

Parent Info **Please answer the following questions about yourself.**

Q8 What is your gender?

- Male
- Female
- Gender Neutral
- Non-binary
- Other

Q9 What is your relationship to your child?

- Mother
- Father
- Grandparent
- Other - Write in: ____

Q10 How old are you?

◯ Under 18

◯ 18-24 years old

◯ 25-34 years old

◯ 35-44 years old

◯ 45-54 years old

◯ 55-64 years old

◯ 65+ years old

Q11 What is your marital status?

◯ Single (never married)

◯ Married, or in a domestic partnership

◯ Widowed

◯ Divorced

◯ Separated

Q12 Where were you born?

◯ Country ____

◯ If you were born outside the United States, what year did you move to the US? (YYYY) ____

Page Break

Q13 Where do you currently live?

- ○ State ____
- ○ City ____

Q14 Which group most accurately describes your race?

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Pacific Islander
- ☐ White or European American
- ☐ Multi-racial
- ☐ Other (Write in) ____
- ☐ I prefer not to answer.

Q15 Which group most accurately describes your ethnicity?

- ○ Hispanic or LatinX
- ○ Not Hispanic or LatinX
- ○ I prefer not to answer

Q16 What is your current employment status?

- ○ Employed full time (40 or more hours per week)
- ○ Employed part time (up to 39 hours per week)
- ○ Unemployed and currently looking for work
- ○ Unemployed not currently looking for work
- ○ Student
- ○ Retired
- ○ Homemaker
- ○ Self-employed
- ○ Unable to work
- ○ I prefer not to answer

Q17 What is the highest degree or level of school you have completed?

- ○ Less than a high school diploma
- ○ High school degree or equivalent (e.g. GED)
- ○ Some college, no degree
- ○ Associate degree (e.g. AA, AS)
- ○ Bachelor's degree (e.g. BA, BS)
- ○ Master's degree (e.g. MA, MS, MEd)
- ○ Doctorate or professional degree (e.g. MD, DDS, PhD)
- ○ I prefer not to answer.

Page Break

End of Block: Parent Information

Start of Block: Household Demographics

Household Demo **Please answer the following questions about your household.**

Q18 What was your total household income before taxes during the past 12 months?

- Less than $25,000
- $25,000-$49,999
- $50,000-$74,999
- $75,000-$99,999
- $100,000-$149,999
- $150,000 or more
- Prefer not to say

*

Q19 What is the total number of people who currently rely on this income (including yourself)?

____

*

Q20 How many children do you have under each of the following age categories?

- ○ 0-2 years old ____
- ○ 3-5 years old ____
- ○ 6-11 years old ____
- ○ 12-14 years old ____
- ○ 15-18 years old ____
- ○ Above 19 years old ____

Q21 How many of your children have Individualized Education Program (IEP) or Individualized Family Service Plan (IFSP)?

▼ 1 ... 5

Page Break

Q22 Does your family speak languages other than English?

- ◯ Yes
- ◯ No

Display This Question:

If Does your family speak languages other than English? = Yes

Q22-2 What is the primary language (s) you use with your child at home?

- ◯ English
- ◯ Spanish
- ◯ Chinese
- ◯ Korean
- ◯ Thai
- ◯ Russian
- ◯ Kazakh
- ◯ Thai
- ◯ Other (Write in): ____

Display This Question:

If Does your family speak languages other than English? = Yes

Q22-3 What is the secondary language (s) you use with your child at home?

○ English

○ Spanish

○ Chinese

○ Korean

○ Thai

○ Russian

○ Kazakh

○ Thai

○ Other (Write in): ____

Display This Question:

If Does your family speak languages other than English? = Yes

Q22-4 If parents use more than one language with your child, which language do you think your child understands the best?

○ English

○ Spanish

○ Other (Write in): ____

End of Block: Household Demographics

Start of Block: Social Validity

Social Validity **Consider your participation in the Prevent Teach Reinforce for Families (PTR-F) intervention with your child. Please complete the items listed below. The items should be completed by selecting a point that best indicates how much you agree with each sentence.**

	Strongly Disagree	Disagree	Somewhat disagree	Somewhat agree	Agree	Strongly agree
1. My understanding of the PTR-F intervention was clear.	○	○	○	○	○	○
2. I found the PTR-F acceptable to address my concerns about my child.	○	○	○	○	○	○
3. I am willing to carry out the PTR-F intervention again.	○	○	○	○	○	○
4. The time and effort required for the PTR-F intervention were reasonable.	○	○	○	○	○	○
5. It was costly to carry out the PTR-F intervention.	○	○	○	○	○	○
6. I think there might be disadvantages in following the PTR-F intervention.	○	○	○	○	○	○

7. It is likely that the PTR-F intervention makes permanent improvements in my child's behavior.	○	○	○	○	○	○
8. I needed to spend much time each day to carry out the PTR-F intervention.	○	○	○	○	○	○
9. I am confident that the PTR-F intervention is effective.	○	○	○	○	○	○
10. It was disruptive for my family to carry out the PTR-F intervention.	○	○	○	○	○	○
11. The PTR-F intervention was effective for my child.	○	○	○	○	○	○
12. The PTR-F intervention was affordable for my family.	○	○	○	○	○	○
13. I like the procedures used in the PTR-F intervention.	○	○	○	○	○	○

14. Other family members were willing to help me carry out the PTR-F intervention.	○	○	○	○	○	○
15. The PTR-F intervention resulted in undesirable side-effects.	○	○	○	○	○	○
16. My child experienced much discomfort during the course of the PTR-F intervention.	○	○	○	○	○	○
17. I was willing to change my family routine to carry out the PTR-F intervention.	○	○	○	○	○	○
18. The PTR-F intervention fit in to my family routine very well.	○	○	○	○	○	○
19. The outcome of the PTR-F intervention was valuable to me.	○	○	○	○	○	○

End of Block: Social Validity

Start of Block: Contextual Fit

Contextual Fit **Consider your participation in the PTR-F intervention with your child and the behavior support plan you created with Gounah's help. Please complete the items listed below by selecting a point that best indicates how you feel about the PTR-F intervention.**

	Not at all	Not much	Cannot tell	Somewhat well	Well	Very well
1. Do you believe the facilitator (i.e., Gounah) understood the needs your child has for support across the day and settings?	○	○	○	○	○	○
2. Do you believe the behavior support plan took into account your understanding of your child (e.g., reasons for challenging behavior, strategies that promote positive behavior, child preferences, etc.)?	○	○	○	○	○	○
3. Did the behavior support plan really address your highest priority goals for your child and family?	○	○	○	○	○	○

4. Did you understand what you were expected to do as part of the behavior support plan?	○	○	○	○	○	○
5. Were you comfortable with what you were expected to do?	○	○	○	○	○	○
6. Did you understand what other members of the team (Gounah and other family members) were expected to do as part of the plan?	○	○	○	○	○	○
7. Were you comfortable with what you were expected to do?	○	○	○	○	○	○
8. Did the behavior support plan recognize and support your needs as a mother?	○	○	○	○	○	○

9. Did the behavior support plan recognize the needs of other family members living at home?	○	○	○	○	○	○
10. Overall, how well did the plan fit with your values and beliefs about raising your child with a disability and creating a meaningful family life together?	○	○	○	○	○	○
11. Did the behavior support plan include successful strategies you have used during family routines at home?	○	○	○	○	○	○
12. Did the plan recognize and build on your family's strengths?	○	○	○	○	○	○
13. Did the plan recognize and build on positive contributions your child has made to the family?	○	○	○	○	○	○

14. Did the facilitator provide you enough materials and procedures you needed for implementing the PTR-F intervention?	○	○	○	○	○	○
15. Were the strategies and procedures consistent with your personal values?	○	○	○	○	○	○
16. Did the plan make use of resources (e.g., help from a partner, respite care, parent support group, etc.) available to you and your family?	○	○	○	○	○	○
17. All this considered, how difficult was it for you to use the behavior support plan (e.g., time involved, coordination, tasks) ?	○	○	○	○	○	○

18. If the behavior support plan was effective, do you believe that you can keep using the strategies in the plan for over 1 year even though the facilitator will not be available as much (e.g., little to no contact from the facilitator)?	○	○	○	○	○	○

End of Block: Contextual Fit

Appendix I

PTR-F Procedural Fidelity Checklist

PTR-F Procedure Checklist 1: Baseline (Initial meeting)

Participant ID: **Meeting Date:** **Coding Date:** **Coder:**

Please complete the following checklist using the following materials:

- Meeting recording
- Initial Visit Record

		YES	NO	N/A	Video ID/Time
1.	Did the facilitator explain the purpose of the study?				
2	Has a specific challenging behavior of concern been identified and discussed?				
3.	Did the participant talk about what they hope to gain from the project?				
4.	Has the team selected 1-2 routines to film during the course of the study?				
5.	Did the facilitator explain how to film videos?				
6.	Did the facilitator explain how to upload videos?				
PF % = YES / (YES + NO) * 100 =					

NOTE: Facilitator = Gounah, TEAM = Gounah and the parent

PTR-F Procedure Checklist 2: Training

Participant ID: **Meeting Date:** **Coding Date:** **Coder:**

Please complete the following checklist using the following materials:

- Training recording
- PTR-F assessment checklist and summary table
- PTR-F Behavior Support Plan Summary
- Visual materials

		YES	NO	N/A	Video ID/Time
1.	Did the facilitator introduce her background?				
2.	Did the participant talk about their background and the family?				
4.	Have long-term goals been discussed as a vision for the child and family?				
5.	Have short-term goals for challenging behaviors and desirable behaviors been listed on the PTR-F Goal sheet?				
6.	Has a specific challenging behavior been identified and operationally defined?				
7.	Did the TEAM complete the three PTR-F assessment checklists (i.e., Prevent, Teach, and Reinforce)?				
8.	Did the TEAM review the completed checklist and the PTR-F Assessment Summary Table?				
9.	Were hypotheses developed to summarize the team's understanding of the function of the child's challenging behavior?				
10.	Did the TEAM decide on a positive behavior they want to target?				
11.	Has a desirable behavior been identified and operationally defined?				
	Did the facilitator describe the intervention strategies for reinforce?				
12.	Did the facilitator describe the intervention strategies for prevent and teach in the PTR-F Intervention Menu?				
13.	Did the TEAM decide on intervention strategies to include in the behavior support plan?				
14.	Did the TEAM review the Behavior Support Plan Summary?				
15.	Did the family review the BSP's contextual fit and made necessary changes before finalizing it?				
16.	Did the TEAM determine next steps for implementing the BSP?				
17.	Did the facilitator provide necessary resources to support the family? (e.g., visuals)				

18.	Did the facilitator check for understanding (e.g. "do you have any question?") at least three times per session?				
19.	Was the facilitator's language free of jargon during the session?				
PF % = YES / (YES + NO) * 100 =					

NOTE: Facilitator = Gounah, TEAM = Gounah and the parent

PTR-F Procedure Checklist 3: Coaching

Participant ID: **Meeting Date:** **Coding Date:** **Coder:**

Please complete the following checklist using the following materials:

- Coaching recordings
- Follow-up Emails
- Coaching Logs

		YES	NO	N/A	Video ID/Time
1.	Did the TEAM review the progress at home?				
2	Did the facilitator share what she observed from the videos?				
3.	Did the facilitator provide positive AND feedback about the parent's practice?				
4.	Did the participant had a chance to reflect on their practice at home?				
5.	Did the facilitator use any of the coaching strategies from below: - Problem-solving discussion - Model - Focused observation using video recordings - Role-playing - Environmental arrangement				
6.	Did the TEAM discuss next action steps?				
7.	Did the facilitator send a follow-up email to the family?				
8.	Did the facilitator complete the coaching log during or after each coaching session?				
9.	Did the facilitator check for understanding (e.g., "do you have any question?") at least once per session?				
10.	Was the facilitator's language free of jargon during the session?				
PF % = YES / (YES + NO) * 100 =					

NOTE: Facilitator = Gounah, TEAM = Gounah and the parent

Appendix J

Sample Interview Protocols

Parent Interview Guide

Date:	Time:	Participant ID:

Materials and Supplies

- Interview guide (p.1-2)
- List of intervention/coaching components (p.3)
- Behavior support plan (p.4)
- Graph (p.4)
- Contextual fit questionnaire (p.5)

Thank you for taking the time to talk to me today. You are in this interview because you have participated in the PTR-F process as a parent for several weeks. I am interested in learning more about your experience during the study, particularly around how well the PTR-F process fitted with your family's unique practices and beliefs about raising your child.

I expect this interview to take 45-60 minutes depending on your answers.
In case our interview is cut off via Zoom, I will call you on the phone to continue the interview. Is this phone number correct?

Number provided: _(___)____-________

I. Consent to Record

I will need to record our conversations to ensure that I accurately capture your comments and perspective, but I won't share this recording with anyone who isn't in the study.

Do I have your permission to record this interview?
□ No
□ Yes

Start digital recording now. Say the participant ID and repeat that you have permission.

Do I have your permission to record this interview?
□ No
□ Yes

Before we start the interview, I want to make sure that you have everything you need to answer my questions. I have sent a PDF file before the interview. Do you have them opened or next to you? (Give time to prepare.)

II. Interaction between the parent's cultural background and the PTR-F process

I am going to ask you question about your experiences during the PTR-F process and how it felt to you based on your experiences from your home country. You might need to look at the lists of intervention and coaching components on page 4 to answer some of the questions in this section.

1. Let's look at the intervention components on page 4. What part of the intervention supported you to continue your unique practices at home during the intervention?
    a. Tell me some examples of how (COMPONENT) helped you develop a behavior support plan that fits your practices at home.
2. Look at the intervention and coaching components again. If you imagine that you participated in this intervention in Thailand, what parts of the intervention would look different?
    a. How would it look different?
    b. Tell me about the differences that were so unfamiliar that they made your participation more difficult.
3. What would the ideal relationship between you and the facilitator look like in a successful intervention?
    a. What parts of the intervention helped you develop such relationship with me?
4. Tell me about any barriers that you experienced while communicating with me.
    a. Describe specific examples of accommodations that helped you overcome the barriers. (e.g., emails, texts, frequent check-ins, translation, going through each component at a slower pace, pausing often for a question, etc.)

III. Parent's cultural background and their implementation of behavior support plan.

I am going to ask you questions about how well PTR-F intervention fitted your practices at home and what you believe to be important for raising a child. You might need to look at your behavior support plan on page 5 to answer some of the questions in this section. (Give them time to pull out the list of practices in their BSP.)

5. Think about how your daily practices at home matched with the new practices we developed. You can look at the behavior support plan if you want. What specific practices matched with what you were already doing with Molly?
    a. Was there any practice that did NOT align with what you were already doing? Tell me some examples.
6. You grew up in Thailand, and every Thai family's parenting would look different. How does the new practices you learned during the PTR-F intervention align with how your parents raised you? (You can look at BSP again if you need.)
    a. How did your parent's parenting style affect your parenting style now?
    b. How does the new practices you learned during the intervention align with your own parenting style? (You can look at BSP again if you need.)
7. What do you value the most when you raise your child? And let's look at your Behavior support plan. What part of the behavior support plan specifically helped you practice that value?
    a. What were some values that were not reflected in the intervention?

IV. Graph-specific questions

Let's open the graph on page 4 first. This is the data I collected about your behavior change and the child's behavior change. The horizontal axis represents the session numbers, and the vertical axis represents the percentage of your child's challenging behavior and your use of the strategies in your BSP. Black squares show how you were using the strategies in your BSP. And the empty

triangles show how often your child was engaging in challenging behavior during the 15-minute routine. Data points before the vertical line represents the behavior patterns before you received the training and coaching. And data points after the vertical line represents the behavior patterns after you received the training and coaching.

8. Look at the data points in the intervention condition. If you look at the black squares after the first vertical line, you are using about 80% of BSP strategies in the second intervention video. Then you started using less and less BSP strategies from the third intervention video. Particularly, you started using less of social story or less behavior expectations.
   a. Why do you think you started telling Molly behavior expectations less frequently?
9. When I looked at your data, you were using most of the strategies to prevent. The strategy you did not frequently use was the teaching strategies, like finding an opportunity to teach Molly to appropriately express her emotion and prompting her by asking "how are you feeling?"
   a. Why do you think you did not use this teaching strategy a lot?
   b. What change would help you teach Molly how to express emotion appropriately?
   c. And in the last intervention video, you used the teaching and prompting again. What made you start using that strategy again? What was different in this session? (show video 041023)
10. During the PTR-F intervention, you learned how to understand why Molly does certain behavior, how to choose the right strategies, how to prevent challenging behaviors and how to teach new behaviors. How would you apply this new knowledge to Molly's other behaviors? Tell me specific examples.
11. How would you explain this intervention to other families?
12. What do you think other practitioners need to know to successfully use this PTR-F intervention?

V. Conclusion

I really appreciate your participation in this study. I have asked you questions about family's unique practices and beliefs and how they align with PTR-F. Is there anything I did not ask, but you think is important for me to know?

Thank you for your time. To compensate for your time, you will receive a $25 e-gift card for Amazon. Does this work for you?

□ Yes.
□ No. If not, which gift card do you prefer? ________________________

Is the email we used to communicate with you so far an appropriate place to send the gift card?

□ Yes.
□ No. Alternative email ____

END RECORDING.

List of Intervention and Coaching Components

Intervention components:

- Introducing each other's background,
- Setting goals,
- Completing a behavior assessment checklist together,
- Developing a hypothesis statement,
- Giving feedback on a hypothesis statement,
- PTR-F training,
- Developing a behavior support plan together,
- Evaluating the contextual fit of behavior support plan,
- Coaching.
- (*Something else that is not listed here)*

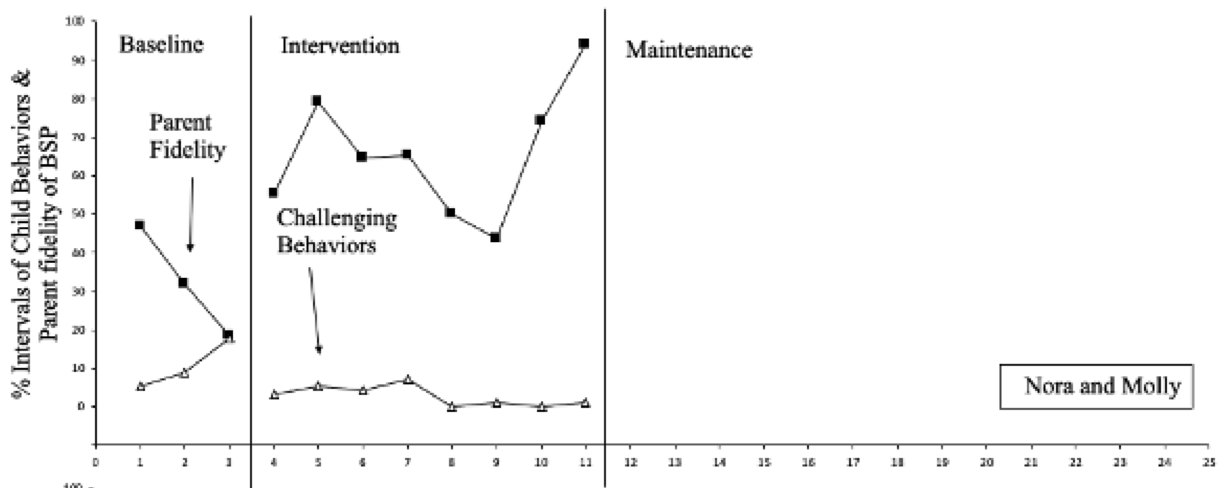
Coaching components:

- Watching the video clip together,
- Positive feedback from me,
- Constructive feedback from me,
- Discussing about specific problems and brainstorming solutions together,
- Self-reflection about solutions,
- Modeling from me,
- A follow-up email,
- Going through the data you took at home,
- Discussing the next action steps.
- (Something else that is not listed here)

Behavior Support Plan Strategies

13. Providing high rates of positive attention.
14. Establishing and maintaining predictable daily schedules (Using visual schedule).
15. Including consistent patterns of activities .
16. Explain behavioral expectations (Using a social story).
17. Using timer for added structure.
18. Finding moments to teach how to appropriately express her emotion ("I am scared") or how to make choices within 1 minute during bed time.
19. Using prompts ("How are you feeling?" or waiting or hints) to help Molly express her emotion or make a choice.
20. Providing reinforcer (e.g. praise or sticker) when Molly appropriately expresses her emotion.
21. Not paying attention to challenging behavior.
22. Helping her once she calms down.
23. Acknowledging her feeling and reminding her expectations after she calms down.
24. After Molly calms down, talking about what she can do instead of saying hurtful things to mom.

Graph



Contextual Fit Questionnaire

"Does the behavior support plan "FIT" for your family?"

10. Does the plan address your highest priority goals?
11. Do you understand what you are expected to do as part of the plan? Are you comfortable with what you are expected to do?
12. Does the plan disrupt family routines to a point that it causes stress?
13. Does the plan support your needs as mother?
14. How does the plan fit with the daily routines of your family?
15. How well does the plan fit with your beliefs about raising your child and creating a meaningful family life together?
16. Does the plan recognize and build on your family strengths? Does the plan include successful strategies you have used?
17. Does the plan make use of resources (e.g., help from a partner, parent support group, etc) available to you and your family?
18. All things considered, how difficult will it be for you to implement this plan?