

The *Familismo* Coaching Model (FCM): Using a Values-Based Coaching Framework for Latino Caregivers

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**Abstract**

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With the rates of autism and the Latino population steadily rising in the United States, Latino families face marked disparities with access to timely and quality care. To date, there is little documented literature for how to best support Latino caregivers of young children with autism. Caregiver coaching is one method to disseminate evidence-based information and support families. The Latino community, however, carries unique cultural values and traditions that are critical in their overall family functioning, and it is therefore important to incorporate those Latino-specific values into a coaching framework. This study examined the effectiveness of family coaching model that combines evidence-based interventions, tenets of family-centered practice and literature on core Latino values to create the *Familismo* Coaching Model (FCM). This coaching intervention was measured through a non-concurrent multiple probe design to examine the effects of the FCM in teaching four foundational skills to Latino caregivers remotely. Results of the current study suggest that this intervention was effective at teaching caregivers skills based on the literature for young children with autism. This study also demonstrated high social validity with all three caregivers who completed the intervention.

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## Dedication

I would like to dedicate this dissertation to my parents. Your sacrifices have never gone unnoticed. You taught me to be persistent, hardworking, and dedicated to what I do. Because of you and your unwavering support, I am where I am. *Siempre me han animado a sentirme orgullosa de ser latina. Esto es para ustedes.*

## **Chapter 1: Introduction**

### **Autism Spectrum Disorder (ASD)**

The rate of autism spectrum disorder (ASD; herein referred to as autism) has been steadily rising since the Centers for Disease Control (CDC) and Autism and Developmental Disabilities Monitoring (ADDM) began maintaining records (Data & Statistics on Autism Spectrum Disorder, 2019). The current prevalence of autism is estimated to be 1 in 36 children (Maenner et al., 2023). Factors that have contributed to the rising rates are thought to be an increased awareness of autism among caregivers and professionals (Baio et al., 2018), as well as changes in the diagnostic process (King & Bearman, 2009; Wing & Potter, 2002). Extant research shows that diagnosis and intervention treatment can lead to substantial long-term outcomes and improved quality of life (Reichow & Volkmar 2010; Rogers & Vismara, 2008). There are a multitude of studies demonstrating that intervention beginning at a young age leads to large gains in cognitive, social, communicative, and adaptive functioning (e.g., Dawson et al., 2010; Reichow et al., 2012). Additionally, there is an established correlation between the age of beginning services and overall progress in that child's treatment goals (Granpeesheh et al., 2009). Thus, current research shows that the sooner a child and family connects with the appropriate intervention and family support, the better their long-term outcomes will be.

### **Applied Behavior Analysis**

For children with autism, one of the interventions with the most evidence for effectiveness is Applied Behavior Analysis (ABA). ABA involves utilizing the science of behavioral principles to teach socially significant skills (Baer et al., 1968; Peters-Scheffer et al., 2011; Wong et al., 2015). An individual who receives ABA services may be working on areas such as self-help skills (brushing teeth, getting dressed), communication, play skills, or imitation.

Importantly, this intervention should serve to supplement, not supplant, the services and supports that the child and family are already receiving. Therefore, if a child is attending a publicly funded preschool or elementary school, ABA should work in coordination with these current services to best support the child. Currently, the standard of treatment is a therapist-delivered model that may involve supporting the child in the home, clinic, school, or in a community setting (e.g., childcare, preschool, after-school care), as dependent on their individual needs. Children who are exposed to evidence-based interventions involving developmentally appropriate and comprehensive treatment show substantial long-term gains (Frazier et al., 2021), therefore, it is critical to access services easily and efficiently.

### ***Naturalistic Developmental Behavioral Interventions (NDBI)***

One approach involves principles from Naturalistic Developmental Behavioral Interventions, or NDBI (Schreibman et al., 2015). NDBIs have demonstrated positive outcomes for improving expressive language skills, play skills, social engagement, and overall cognitive development for young children with autism (Sandbank et al., 2020; Tiede & Walton, 2019). NDBIs blend strategies from developmental psychology and behavioral intervention methodology to create a variety of treatment packages aimed at targeting developmental milestones in young children with autism (Schreibman et al., 2015). Yet, studies show that NDBIs are not widely disseminated in communities and in practice (Hampton & Sandbank, 2022; Stahmer et al., 2005), indicating a potential research-to-practice gap. Therefore, more research is needed to support the effectiveness of NDBIs across intervention modalities and a diverse range of families. NDBIs are promoted as a family-friendly intervention that increases the quality and the quantity of opportunities for learning in a child's natural context, with caregivers being encouraged to adopt and implement the strategies themselves (Schreibman et

al., 2015). In parent-mediated intervention, or intervention delivered by the caregiver, the professional guides the caregiver in implementing the strategies with their child. This method has been demonstrated to increase caregiver competence, as well as lead to positive outcomes in the child (Steinbrenner et al., 2020).

### **Diagnosis-to-Services Gap: Disparities in Access**

Despite the promising research on diagnosis and treatment, many children with autism do not receive diagnosis in a timely manner and have a difficult time accessing behavior treatment (Xu et al., 2019). There may be many reasons for difficulty in accessing services, but racial, ethnic, and linguistic differences (Mandell et al., 2009; Zuckerman et al., 2014); socioeconomic status (Durkin et al., 2010); and geographic location of the family (Singh & Bunyak, 2019) are among the most frequently cited reasons for these disparities. Although there is no research to support that the chances of a child developing autism is dependent on their race/ethnicity or socioeconomic status (SES; Dyches et al., 2004), literature consistently highlights disparities largely among racial/ethnic lines, with white children being much more likely to receive a diagnosis of autism than Black or Hispanic/Latino children (Liptak et al., 2008; Mandell et al., 2009). Therefore, white, middle-class families that live in or near metropolitan areas are the most likely to be receiving autism-specific services.

In recent years, diagnostic disparities for some ethnic groups have reduced. For example, in 2016, researchers found that there were no overall differences in autism prevalence between non-Hispanic white (white) children and non-Hispanic Black (Black) children. This was the first time that autism rates between the two racial groups were found to have no significant differences. However, rates of autism among Hispanic (Latino) children remained lower than both groups (Maenner et al., 2020). While this causes concern, the research on the barriers to

accessing autism-specific services after a diagnosis is even less understood. Many children experience a waiting period after an autism diagnosis, where they are often placed on waitlist for behavioral intervention services (Monz et al., 2019). However, Hispanic/Latino children with autism are less likely to receive specialty services (e.g., ABA) and have higher unmet needs than white children and families (Magaña et al., 2013). To mitigate the long waitlists and address these barriers to treatment, studies have demonstrated the effectiveness of caregiver coaching (or parent-implemented) programs (e.g., Kunze et al., 2021; Rivard et al., 2017) and caregiver coaching interventions done remotely (Lee et al., 2022).

### **Virtually Delivered Supports: Lessons of the Pandemic**

While researchers have been utilizing iterations of telehealth and remote coaching for decades (Schieltz & Wacker, 2020), the COVID-19 pandemic led to dramatic shifts in daily life across the globe. For children with disabilities, the pandemic lockdowns led to needed medical, therapeutic, and educational services being shifted to online service delivery, or telehealth (Steed et al., 2022). Whereas children were once receiving speech therapy (ST), occupational therapy (OT), special education, or ABA services in a classroom or clinic, they were now receiving these services virtually through a computer, tablet, or smartphone in their homes. Children struggled with the virtual nature of services and the loss of their routine (Neece et al., 2020). While some challenges were certainly present prior to the pandemic, they were only exacerbated by the shift to remote services. For example, unequal access to technology presented barriers to fully benefiting from this remote instructional style (Poole et al., 2020), with families who did not have access to highspeed internet experiencing more difficulties than others. Additionally, multiple studies have reported on the clear racial/ethnic disparities that were observed throughout the pandemic (Razai et al., 2021; Hooper et al., 2020; Laurencin & McClinton, 2020), with many

of the families who were reporting benefits from remote therapies being white, middle-class, and with adequate access to the necessary technology.

Latino children and families were disproportionately affected during this time. Research on Latino parents of young children with disabilities during the pandemic shows that they referred to virtual learning as “horrible” and “a terrible experience” (Luna et al., 2022). These families also cited unique barriers to adequate treatment, such as difficulties with language interpretation. While factors such as language barriers were present before virtual services, it was heightened during this time. For example, one mother indicated that she could not support her daughter’s participation in preschool because the instruction was in English and she only spoke Spanish (Luna et al., 2022). Indeed, similar studies report that language differences significantly impacted whether a family was receiving services during the pandemic, with Spanish speaking families being much less likely than English speaking families (Alba et al., 2022).

During this time, researchers had a rare opportunity to highlight what practices were facilitating or impeding effective practice in the field. During the pandemic, many professionals shifted their service delivery model to focus more on caregiver coaching, as they could no longer work directly with the child (Steed et al., 2022). This involved the utilization of family-centered practice principles via a virtual platform (Snodgrass et al., 2017). Further, researchers were learning more regarding the benefits of remote services. Through advances in technology, such as the adaptation and fluency of platforms such as Zoom, many rural families have been able to access autism assessments and treatments (Ellison et al., 2021). Thus, while many individualized adapted to telehealth out of necessity, it also provided a normalization of remote services. Not only are remote services more cost effective for many families in comparison to in-person services (Camden & Silva, 2021), but previous reviews have also found remote intervention to

lead to many positive outcomes in children (Sutherland et al., 2019). Thus, remote caregiver coaching is a promising avenue to access individuals who may otherwise not have accessed services.

Yet, there are inherent nuances when weaving in factors such as remote coaching services and consideration of culturally sustaining practices. For behavior analysts, a family's culture must be considered in providing ethical and competent treatment services (Rosenberg & Schwartz, 2019), but little research has been done in this area. Pollard et al., (2017) outlined some considerations and recommendations for providing remote services to racially/ethnically diverse families, such as providing services in the family's home language, rather than using an outsourced interpreter, as this can be further complicated via telehealth format. Latino families have been shown to be significantly less likely to access telehealth services, both before and after the pandemic (White-Williams et al., 2023), indicating that virtual services are still not targeting racial/ethnic groups equally. Indeed, much of the published research involving virtual caregiver training and support has not been with underserved populations (Corralejo & Rodriguez, 2018). Some current research on the Latino population suggests that virtual diagnostic assessments and behavioral parent training programs had high social validity (Stavropoulos et al., 2022; McIntyre et al., 2022), with many parents indicating that they would be open to virtual services in the future.

### **The Current Study**

The purpose of this study is to examine the effects of a culturally tailored, remote caregiver coaching intervention for Latino caregivers. This study introduces and provides the first evidence on the effectiveness of the *Familismo* Coaching Model, or FCM, a coaching model developed to meet the needs of Latino families with children with disabilities. In this study, the

FCM was used to teach caregivers to implement Naturalistic Developmental Behavioral Interventions (NDBI; Schreibman et al., 2015) strategies. Changes in caregiver behavior were measured using the Naturalistic Developmental Behavioral Interventions Fidelity Rating Scale (*NDBI-Fi*; Frost et al., 2020). This study also measures the effects of this coaching on the caregivers' sense of competency levels, as well as measured the overall effects on their child's communication skills.

### **Research Questions**

1. What are the effects of a values-based caregiver coaching intervention on Latino caregivers' fidelity of implementation of Naturalistic Developmental Behavioral Interventions?
2. How does caregiver implementation of skills taught using a values-based caregiver coaching model affect the outcomes of their young children with autism?
3. What effect does implementation of this coaching package have on caregiver competency levels?

## **Chapter 2: Literature Review**

### **The Latino Population and Access to Autism-Specific Services**

Given that most of the published work on autism contains white children and families as the majority (West et al., 2016), it is critical to think about the Latino population separately as we adopt a coaching framework to meet their needs. Latino families often cite unique difficulties in navigating services for their young children. Research states that Latino children are far less likely to receive adequate care when compared to white children of the same age (Mandell et al., 2005). Not only are Latino children diagnosed later, but they also receive fewer services and have consistently higher unmet needs (Angell et al., 2018; Magaña et al., 2013; Pickard & Ingersoll, 2016; Zuckerman et al., 2017), even after accounting for the most cited barriers, such as parent knowledge about autism, parent stress, or cost of services (Zuckerman et al., 2017). In part, this may be due to the disparities in access to medical insurance, stigma, and accounts of systemic bias or racism (Castro-Hostetler et al., 2021; Luelmo et al., 2022). Additionally, families describe a “double stigma” (i.e., being a member of a racially marginalized group and have a child with a disability) and the Latino culture’s views on disability as barriers to treatment (Zuckerman et al., 2017). Extant research on barriers to care for the Latino population are reviewed below.

#### ***Systemic Racism in Healthcare***

Inequities in healthcare relating to race/ethnicity and socioeconomic status have been well-documented (Alvidrez et al., 2019). These inequities operate in a web influenced by unjust policies, mistrust of healthcare professionals among ethnic minorities, and discriminatory practices (Baumann & Cabassa, 2020). Although specific research on the diagnosis-to-treatment lag for Latino families is lacking, Zuckerman et al., (2017) propose that similar factors to the

disparities in autism diagnosis, which has been more heavily researched, may be applicable. For example, pediatricians are less likely to have a screening tool in Spanish available (Zuckerman et al., 2013), showing a lack in equity-centered care for Spanish-speaking families. The Latino community is the fastest growing minority group in the United States, with 18.7% of the population identifying as Latino (US Census Bureau, 2018). Of these individuals, 60% of Latino Americans report speaking a language other than English in the home (Flores & Tomany-Korman, 2008). Yet, this group still reports that language is a significant barrier to receiving equitable treatment (Zuckerman et al., 2014).

Professionals cite numerous barriers and challenges to working with Latino communities, such as language barriers and limited understanding of the Latino culture (Jimenez et al., 2012). The concept of *familismo* (translated to “familism”) is a central value to many Latino families (Calzada et al., 2013), which entails placing the family’s needs above one’s individual needs (Harlin & Souto-Manning, 2009). In practice, this may mean that a Latino family prioritizes togetherness over individuality. It may also mean less emphasis on independence skills and more emphasis on prosocial skills in children. This is critical for professionals to understand, especially when considering the implementation of a culturally responsive intervention. Values such as *familismo* are lacking in the autism literature, which can be problematic because professionals may not thoroughly understand the reasons behind Latino parenting practices and styles (Adams et al., 2013). With Zuckerman et al. (2017) proposing that similar factors may be influencing access to autism treatment, it can be assumed that providers may not have behavior intervention assessment tools available in Spanish. Additionally, perhaps some intervention professionals feel inadequate or uncomfortable assessing families that are monolingual in Spanish. However, more research is needed to support this hypothesis.

Pediatricians also report feeling more uncomfortable assessing Latino children, especially when the caregivers are non-English-speaking (Zuckerman et al., 2017). Unfortunately, this hesitancy is something that is easily perceived by Latino patients, who report feeling differential treatment. Throughout the diagnostic process, caregivers have reported that their trust in the healthcare system slowly faded, and they grew more frustrated in the lack of support that was given to them (Zuckerman et al., 2014). Latino caregivers report doubting whether their provider was truly meeting their needs or keeping their child's best interests in mind. This frustration carried out to the point where some caregivers were considering the possibility that the providers were intentionally making the process tedious and difficult for Latino families just to save on costs (Zuckerman et al., 2014). Latina mothers expressed that they received no immediate action from their healthcare provider when they shared concerns regarding their child's development, and some felt that their statements were dismissed completely (Coffield et al., 2021). Latino caregivers also experience differential treatment based on their level of English, with less resources and information being available to those that primarily spoke Spanish (Jimenez et al., 2017). Interestingly, English-language proficiency predicts a family's timely entry into services (Coffield et al., 2021), indicating that healthcare systems may not be as supportive to those that do not speak English. Bias among practitioners can be influential in early diagnosis and access to intervention among Latino children (Flores et al., 2005), with many Spanish-speaking families reporting that they feel dismissed by their pediatricians (Coffield et al., 2021; Stahmer et al., 2019). With this lack of quality care, it may be likely that Latino caregivers put off intervention-seeking for their child.

A common barrier reported by Spanish-speaking Latino caregivers post-diagnosis is autism awareness (Angell et al., 2016; Zuckerman et al., 2017). Up to 85% of Latino caregivers

reported that autism awareness was their most salient barrier to diagnosis and subsequent services (Zuckerman et al., 2017). Importantly, Latino and white families did not differ as to when they noticed developmental delays in their child, but rather differed in knowing that autism might account for their observations. Latino caregivers reported that, even after their child was given a diagnosis, they didn't know what next steps were needed (Zuckerman et al., 2014). Taken together, this may indicate low information-giving and education provided by practitioners to these Latino families. With research showing that children can be reliably diagnosed as soon as autism characteristics emerge (Estes et al., 2019), more professional-driven efforts are needed to ensure that Latino children are receiving adequate, culturally responsive care as soon as there are concerns regarding developmental delays.

### ***“Double Stigma”***

For any caregiver of a child with autism, stigma may play a role in the seeking of and access to treatment. Caregivers of children with autism experience significant stigma and often exclusion in their community (Kinnear et al., 2016; Jones et al., 2020). The role of stigma may be especially salient in the lives of Latino caregivers. Caregivers from traditionally collectivistic cultures (such as the Latino culture) may experience more stigma and shame towards having a disability (Ijalba, 2016), thus impeding treatment-seeking. The Latino culture holds high standards regarding respect and family values. The philosophy of being *bien educado* (“well educated”) has little to do with formal education; rather, being *bien educado* means being a respectful, moral person (Bridges et al., 2012). Having a child with a disability that may display persistent challenging behaviors can leave families feeling stigmatized and shameful – not of their child's diagnosis, but of how this reflects their own childrearing practices (Ijalba, 2016). Latino caregivers may fear others might think their child to be spoiled or improperly raised

(Zuckerman et al., 2014) and some Latina mothers report being blamed by members in their community for their child's challenging behaviors and disability (Lopez et al., 2018). /

Latino caregivers may avoid seeking any intervention services for fear of being further stigmatized by professionals. This stigma of having a child with a disability, compounded by being a member of a historically marginalized community, can lead to Latino families experiencing a "double stigma" (Abdul-Chani et al., 2021). Even if caregivers have acute awareness of autism and causes of challenging behavior through autism -specific education, they report feeling isolated due to their community's (i.e., social, and familial circle) lack of understanding of what autism is (Ijalba, 2016) and by society at large (Luelmo, 2021). In comparison to white mothers, Latina mothers have reported experiencing more feelings of guilt and injustice in receiving their child's autism diagnosis (Lopez et al., 2018). In this same study, white mothers felt more ready to move forward and proceed to next steps, whereas Latina mothers felt heavier feelings of burden and reported feeling more isolated from extended family. Facing continuous criticism and isolation can further inhibit a family's willingness to seek out intervention services for their child, for fear of further embarrassment or rejection.

One critical variable that additionally factors into the stigmatization within and of the Latino community is immigration. Immigration is a subject that has grown increasingly divisive in the past years. Undocumented families are more likely to experience high levels of stress due to fears of their status being discovered or being separated by their family through deportation (Dettlaff, 2008). Some families need to consider their own immigration status in the process of seeking diagnosis and treatment for their child (Luelmo, 2022). While the federal government does offer young children with disabilities support, it can paradoxically exclude undocumented caregivers from accessing services as well, which can increase parental shame and fear in their

undocumented status (Yoshikawa, 2011). Thus, immigration status may be a factor that prevents undocumented caregivers from seeking out services for their children in health care and early education (Yoshikawa, 2011). In a study conducted by Fountain and Bearman (2011), researchers found that the rates of autism in the Latino community in Texas rose and fell in tandem with immigration reform, meaning autism rates in the Latino community were lower in years where immigration reform was heightened and higher during years where families were perhaps not as fearful of deportation if they reported developmental concerns to their pediatrician (Fountain & Bearman, 2011). Parent-centered intervention programs that do not address the social stressors and concerns that Latino families feel have been found insufficient to address this community's needs (Gordillo et al., 2020; Issarraras et al., 2019).

### ***Cultural Incongruence***

The Latino community might have varying views on disability, diagnosis, challenging behavior, and treatment outcomes than the white-centered American 'standard' in the United States. In a study by Cohen and Miguel (2018), Mexican immigrant caregivers were asked questions regarding their perceptions on their child's diagnosis and treatment options. Caregivers reported the idea of *amor* (love) more frequently than anything else. For example, when discussing their child's tantrum behaviors, Mexican caregivers explained how they used *amor* to support their child through challenging times. Although differing from American-centered views on what is necessary for the child in that moment, Mexican caregivers in this study viewed that *amor* was the most important factor in supporting their child. Latino caregivers have also reported feeling a heavy burden with the amount of commitment being asked of them for behavior intervention services (Angell et al., 2016). Many young children recently diagnosed with autism can be recommended to receive up to 30-40 hours per week of treatment services,

with 25 hours per week being the recommended minimum for some young children (Myers & Johnson, 2007). This may require that a parent be available and participatory during those periods, implicitly requiring a stay-at-home parent to participate in their child's therapy. Latino caregivers report that this commitment is unsustainable and state that even dedicating 15 hours per week is difficult (Angell et al., 2016). Other factors, such as limited number of cancellations, emphasis on compliance, and rigid therapy practices were also noted as barriers to retaining behavior intervention services (Angell et al., 2016). Thus, offering support in a more flexible manner may be a better cultural fit.

Latino caregivers who have had experience with other types of treatment and support services, such as early intervention, may have had unsatisfactory experiences and thus elected not to pursue ABA after their child's 3<sup>rd</sup> birthday. In a study by Iland et al. (2012), Latina mothers reported a lack in culturally sensitive care with their children. Mothers reported a lack of information given to them on how to support their child's challenging behavior, despite wanting to know more and this being a source of stress, as well as being taught how to play with their child. Latina mothers in this study reported that the language barrier also posed a significant obstacle in forming a relationship with their early intervention provider. This sentiment is confirmed with a study by DuBay et al. (2018), which showed that Latina mothers wanted more involvement in their child's therapy, but lack of Spanish-speaking therapists or interpreters stood in the way. They also wished for a more personal connection to their therapists, as this was important to them, but didn't receive the connection they hoped for (DuBay et al., 2018). Mothers felt that therapists were unprofessional and distant, stating that they didn't feel enough *amor* (love) poured into their child's therapy (DuBay et al., 2018). Thus, this community has been vocal in their needs for information and support, delivered in a family-friendly and

culturally sustaining format. Multiple research studies (e.g., Luelmo et al., 2021; Casillas et al., 2017; Dubay et al., 2018) have called for such services to be provided to the Latino community.

### **A Culturally Tailored Coaching Model**

With the unique experiences of the Latino community, a culturally tailored family coaching model is needed. This coaching model addresses the strengths and needs of this population, as derived from the literature on family-centered practice, evidence-based interventions for autism, and the core values of the Latino culture.

#### ***Family-Centered Practice***

For young children with developmental disabilities, using a family-centered approach involves the coach or professional viewing the entire family as the unit of attention, not just the child (Espe-Scherwindt, 2008; McWilliam, 2010). Additionally, the coaching work emphasizes capacity-building within the caregiver, building on their current strengths and encouraging the caregiver in ways they could embed learning opportunities within everyday routines (McWilliam, 2010). More than simply providing training on a skill, a family-centered coaching model entails the creation of a partnership with the family, viewing them with respect, honoring their personal values, and providing them with the tools that work with their entire family on an ongoing basis (Dunst, & Espe-Sherwindt, 2017). The professional should approach the relationship with the caregiver and immediate stakeholders as a partnership, where the professional gives evidence-based recommendations and the family gives equal of input in relation to their child (Stewart & Applequist, 2019).

While definitions vary, one useful definition of a partnership is “communicating, building relationships, supporting parents’ goals for their child at school and home, and supporting parental engagement in their child’s education at school and home” (Jones et al., 2020, p. 767).

In this partnership, the family is viewed as equally knowledgeable and of equal importance as the professional. Developing partnerships with families is considered foundational for young children and their families (Zygmunt-Fillwalk, 2006) and the benefits of parent participation are directly correlated with their family-professional partnership (Turnbull et al., 2015). In determining what focus areas will be emphasized, goals should be determined by family needs, cultural norms, and resources (Turnbull & Turnbull, 2000). Interaction styles between caregivers and children influence what behaviors they reinforce and shape (Guiberson & Ferris, 2019), therefore each family's outcomes may be different.

Through Ecological Systems Theory, the professional not only looks at the child's immediate environment (i.e., home, childcare setting, special education classroom), but also looks at their larger environment (i.e., culture) (Bronfenbrenner, 1989), with each system influencing each other. While there have been many updates to the model of family systems over the years as the field progresses, core components include "capacity-building help-giving practices, family needs (concerns and priorities), family strengths, and social supports and resources (Trivette et al., 2010).

Family Systems Theory extends the Ecological Systems Theory and is one of the primary undercurrents in services for young children, as it highlights the intricacies of all family members as a system that influence one another bidirectionally (Brown, 1999). For example, a child's behavior may influence the family's behavior, which is also influenced by their culture and social systems. Rather than focusing on individual behavior, family systems theory focuses on the entire family's behavior. It provides a rationale for how each family unit experiences anxiety, loyalty, togetherness, dependence, and independence (Brown, 1999). In an educational context, it becomes important to view the family instead of only treating the child. Family

systems theory encourages the therapist to help family members understand how any behavior can become part of their pattern of relating to each other (Brown, 1999; Pang, 2010).

Key components of a family partnership include utilizing a framework that equitably leverages family strengths and centers family choice in every step of the supports process (Madsen, 2009). Family partnership should be a democratic process where educators and professionals are engaging in dialogue with families, knowing that no two families are the same, and coming up with mutual goals (Beneke & Cheatham, 2016). Through family coaching, the professional can empower families, expand their current knowledge base, and better achieve family and child outcomes (Bierman et al., 2017). Importantly, professionals should be acutely aware of the inherent power imbalances that may be present, particularly with historically marginalized communities (Cheatham & Ostrosky, 2011), and they should be continuously working towards equalizing that power imbalance. In a coaching partnership with Latino families, professionals can leave time and space for families to talk about their current strengths, parenting knowledge, values, and traditional beliefs. Professionals should also be aware of when families devalue their own parental knowledge. In empowering families through coaching, professionals can focus on what areas families talk about with pride to foster feelings of self-efficacy.

### ***Evidence-Based Interventions for Children with Autism***

A sustainable and effective coaching model of caregivers with children with autism should include the use of evidence-based interventions in its teachings (Hume et al., 2021). It is critical that a coach contextualizes their strategies in practices that are established to provide meaningful behavior change for children with autism. Evidence-based practices such as prompting, reinforcement, imitation, and modeling should be used to teach socially significant

and foundational skills in development. Parent-implemented intervention (Hume et al., 2021; Ingersoll & Dvortcsak, 2019), meaning that the behavior changes in the child result from the caregiver directly providing the intervention, rather than a behavior professional. Not only is parent-implemented intervention a key factor in intervention for young children (Division for Early Childhood, 2014), but training and coaching the caregiver to implement behavior-change procedures has been shown to result in positive outcomes in the caregiver as well as the child (Dunst et al., 2007). Naturalistic Developmental Behavior Interventions (NDBIs; Schreibman et al., 2015) take tenets of ABA and developmental psychology to foster critical skills in early childhood, specifically for young children with autism. There are many different types of interventions that fit under the umbrella term of NDBI, such as Pivotal Response Treatment (PRT; Koegel et al., 2016), the Early Start Denver Model (ESDM; Rogers & Dawson, 2020), Joint Attention, Symbolic Play, Engagement, and Regulation (JASPER; Kasari et al., 2006) and Project Improving Parents as Communication Teachers (Project ImPACT; Ingersoll & Wainer, 2013). NDBIs have been shown to improve key areas of development such as social engagement and cognition in young children (Tiede & Walton, 2019). In contrast to more traditional ABA approaches, which may be more adult-lead, NDBIs utilize strategies such as following the child's lead, having a positive affect, modeling appropriate communication to foster social engagement and communication in the child all through the context of play and natural routines (Frost et al., 2020). Additionally, this child-lead approach has been stated to potentially bridge the gap between early intervention and the neurodiversity movement (Schuck et al., 2022).

### ***Core Values of Latino Families***

Taken together, evidence-based interventions and family-centered practice are two components to a coaching model. However, incorporation of Latino-specific cultural customs

and adaptations are lacking. Effective family coaching relies on the bidirectional influence between a family and the coach. To fully incorporate family-centeredness, we must examine what values, traditions, and norms Latino parents pass on to their children (i.e., ethnic socialization; Hughes et al., 2006). Conceptualizing an emic framework from the “bottom-up” can yield a more comprehensive model by highlighting a few of the foundational values of the Latino culture, as told by Latinos themselves (Calzada et al., 2010; Casillas et al., 2017; Zayas & Rojas-Flores, 2010). This section will explore the themes that emerge from the literature relating to the Latino community and how this influences the coaching model.

**Interdependence/Collectivism.** The Latino community tends to be more interdependent in their interactions (Kayser & Guiberson, 2008; Guiberson & Ferris, 2019). This differs from European-American traditions, where individualism and independence are more centered in society (Harlin & Souto-Manning, 2009). Interdependence refers to “a dynamic of mutual responsibility, sharing a common set of principles with others” (Harlin & Souto-Manning, 2009, p. 184). Awareness of interdependence as a theme in Latino culture is important for EI professionals engaging in family coaching, as this can help shape what outcomes result from the coaching work. For example, Latino families exhibiting high interdependence may not find their child’s independence skills to be of their highest priority (e.g., feeding self, sleeping in own room, independent play). These values can sometimes conflict with what is expected by professionals or in a classroom setting (Harlin & Souto-Manning, 2009), therefore, professionals can help families navigate these goals in a way that is meaningful for the family as a unit. Interdependence is also related to emphasizing group harmony, especially through acts of service for family members or prioritizing specific emotions. For example, Latinos openly express, and place cultural value in, positive emotions such as excitement, enthusiasm, and joy in comparison

to other collectivistic cultures (Ruby et al., 2012). Gratitude is also highly valued in the Latino community and has been demonstrated to directly influence the well-being of Latinos (Corona et al., 2020). It should be emphasized here, that not all interdependent and collectivistic cultures function in the same way and it is important for professionals to be aware of commonalities among Latinos, but not stereotype. Coaches can emphasize the Latino community's interdependence by asking other family members to participate in the coaching work, as family closeness is highly valued and may contribute to extended family members knowing more about disabilities (DuBay et al., 2018).

**Familismo.** The term *familismo* can be defined as “a social pattern in which the family’s position has priority over individual interests” (Harlin & Souto-Manning, 2009, p. 184). Essentially, this core value within the Latino community places the needs and success of the family over the needs and success of the individual. Latinos tend to have extensive family networks and tend to rely on them heavily (Calzada et al., 2012; Gordillo et al., 2020). Strong familial ties have also been shown to act as a protective buffer against mental health struggles such as depression in Latino youth (Rivera, 2007). In a qualitative interview with Latino and non-Latino caregivers, all the Latino caregivers emphasized how important their family support was to them (Casillas et al., 2017). Alternatively, if the family is a recent arrival to the United States, it is possible that they no longer have a strong support network and this may also affect their approach to family partnership in coaching (Harlin & Souto-Manning, 2009; DuBay et al., 2018). Professionals should be aware of this and connect families to resources or support networks if they want them.

An additional component to *familismo* is the caring for multiple generations within one household. Children are expected to care for their elders (Harlin & Souto-Manning, 2009), which

likely impacts who is receiving the coaching services and who is interacting with the child. Therefore, the child's microsystem (Bronfenbrenner, 1989) may contain grandparents, cousins, etc. In a qualitative study with Mexican and Dominican mothers (Calzada et al., 2010), differences in American versus Latino parenting styles were noted. For example, Latina mothers reported that American families are highly concerned with achievement, which they found to be incongruent with their value of *familismo*. Mothers also wondered if American children were "in touch with the needs of their parents" (Calzada et al., 2010, p. 9), indicating that this is something highly valued in their own culture. This perspective is indeed in contrast to the cultural importance of achievement-based success in the United States. Educators, coaches, and other professionals are encouraged to be culturally aware of this perspective and highlight family togetherness during coaching sessions. Some research has incorporated *familismo* directly into parent training for children with autism (Magaña et al., 2017), but more is needed to adapt this to coaching work through.

**Personalismo.** The concept of *personalismo* refers to the value of personal, caring, and genuine relationships with others (Cauce & Domenech-Rodriguez, 2002; Luelmo et al., 2022). It allows for individuals to exchange small talk, express emotions, give compliments, thereby building both confidence and trust in others (Davis et al., 2019). These exchanges are not limited to personal or familial relationships. In fact, *personalismo* is also valued in professional relationships within the Latino community (Davis et al., 2019). In the medical field, *personalismo* with the Latino culture has demonstrated that, with increased trust building personal relationships, Latino patients are more likely to disclose personal health information (Flores, 2003) and follow through with professional recommendations (National Alliance for Hispanic Health, 2001) in comparison to situations where *personalismo* is not practiced. It may

also help families develop a sense of security with the professional they are working with (Flores, 2003). In essence, practicing this genuine person-centered care builds *confianza* (trust) with Latino patients and families (Luelmo et al., 2022; Ratto et al., 2017), which is critical to a successful intervention.

For Latino families who are recent arrivals to the United States, there may be fear or mistrust with disclosing information until *personalismo* has been put forth (Davis et al., 2019). Further, these families may already be separated by their social support systems (e.g., family and friends) and are working on establishing new relationships here in the US. Professionals who practice *personalismo* with Latino families can help build trusting and supportive partnerships through their coaching work. When supporting families, it is crucial to think of support as a system, rather than a checklist or other linear format – rather, it is interconnected (Coleman et al., 2020), with various contexts flowing bidirectionally and lead to improved child outcomes. It is through *personalismo* that many professionals can build in other aspects to this coaching model, such as *familismo*. Through genuine conversations with Latino families, the coach can determine what aspects of their family are highlighted and include these in the coaching practice.

**Respeto.** Passing down certain behavioral norms and expectations is highly valued within the Latino community (Umaña-Taylor & Yazedjian, 2006). The concept of *respeto* (respect) involves the importance of respecting adults (especially members of the family) and teaches children that they should not interrupt adults or argue with them (Delgado-Gaitan, 1994; Calzada et al., 2010) and overall promotes obedience and good behavior as a means of preserving family harmony. Having a highly obedient child is considered to be a reflection of good parenting and family morals (Calzada et al., 2010). Relating to *familismo*, the idea of *respeto* emphasizes that being obedient reduces unneeded strain on the family, thus prioritizing the family's well-being

over one individual's needs. This is critical for professionals to, at minimum, be aware of, especially when they are coaching families with children displaying challenging behaviors. Families who have children with challenging behaviors may avoid seeking help (e.g., EI services, ABA, familial support), or even avoid social situations because of the expectation that their child should be obedient and respectful (Acar et al., 2021). Challenging behavior can often be viewed as an extension of the family's parenting style and therefore disrespectful to the family (Calzada et al., 2010). It may be important that the coach emphasizes the causes for challenging behavior for children with disabilities and stress that it is not a reflection of poor parenting. Professionals can embed aspects of *respeto* into their coaching work by calling out instances where the child is responding well to the strategies or displaying certain behaviors such as following directions.

### **The *Familismo* Coaching Model (FCM)**

Centering *la familia* (the family) in a coaching partnership is celebrating *familismo*, a well-documented Latino value. It is both an attitude/perspective (Cauce & Domenech-Rodriguez, 2002) and a display of actions and behaviors (Calzada, 2010). It should be noted that literature also shows how an absence of *familismo* can impact Latino mental health. Feelings of rejection, isolation, and social stigma are reported among Latino communities after their child is diagnosed with a disability (Ijalba, 2016; DuBay et al., 2018). Other families note that it makes the family bond stronger, because they are all working toward the child's (and therefore the family's) success (DuBay et al., 2018). The influence of families within the Latino culture cannot be ignored. Indeed, whether the family does have a strong support system, has recently left their support system, or is feeling socially rejected by their support system, professionals should not underestimate the weight of *familismo* among the Latino community and in their coaching work.

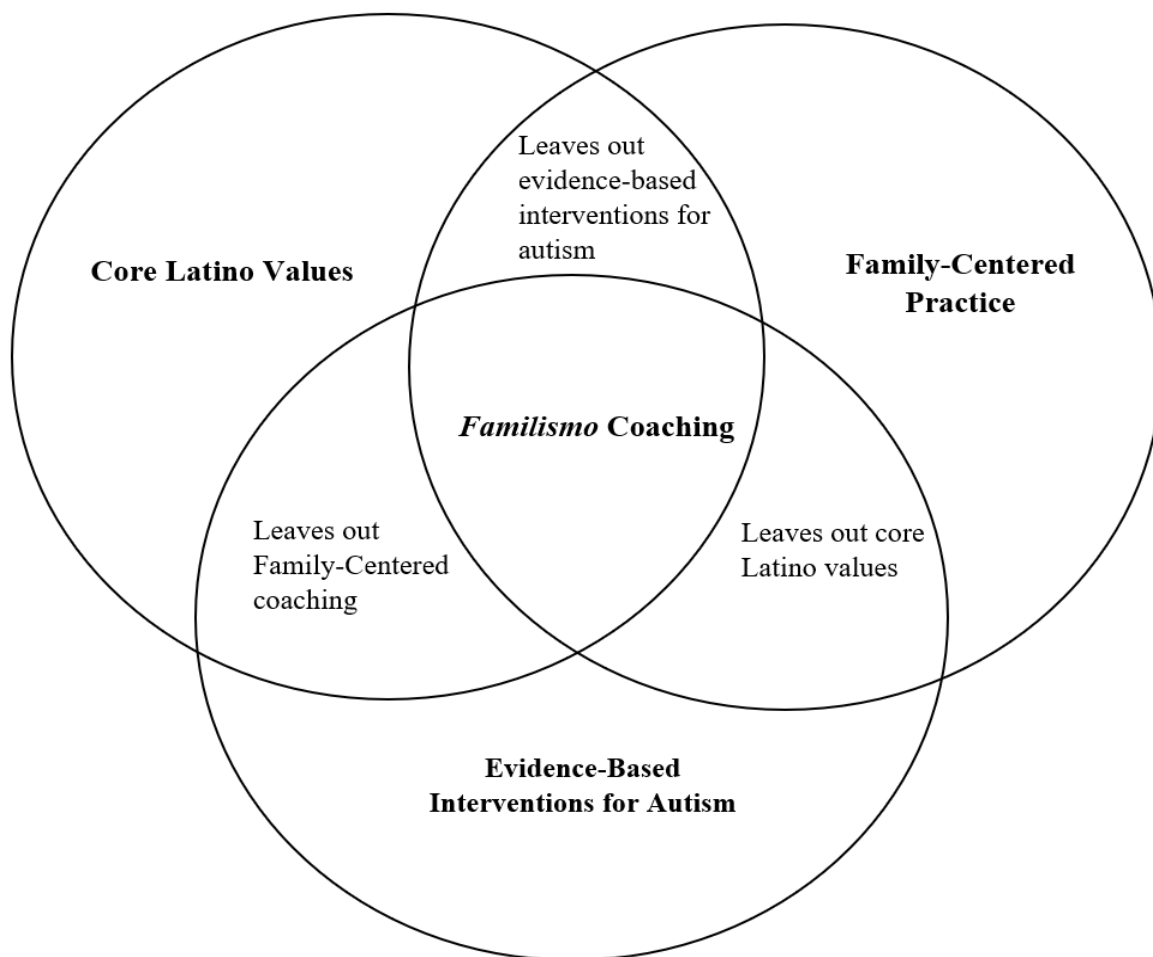
The utilization of a family-centered and evidence-based family coaching model with Latino families of young children with autism is needed in the literature. Through family coaching, the professional develops trust (*confianza*) that empowers and centers the family's values. Family-centered practice embodies family systems theory (Pang, 2010) and ecological systems theory (Bronfenbrenner, 1989), which state that the family functions as a unit – the child does not develop in isolation, rather there are multiple streams of influence that shape the child's developmental trajectory. A core component to family coaching is also embedding evidence-based practices within a family's natural home routines. For example, shared book reading has been noted to have strong value with Latino families (Ijalba, 2015). Through coaching, the professional can help the caregiver embed evidence-based techniques such as prompting or reinforcement to increase valuable behaviors in the child. The coach should specifically be aware of and incorporate Latino-specific values, expectations, and beliefs into their coaching partnership. The Latino community places high importance on things like interdependence, *familismo*, *personalismo*, and *respeto*. Therefore, the professional can use these as a basis for forming the partnership and outcomes.

Interventions and supports are usually designed for racial and social majority – in other words, white and middle-class – and may not be appropriate for all families (Gross et al., 2007). By only looking at the mainstream expectations, we are discounting the values of families whose culture differs than white-American standards (Beneke & Cheatham, 2016) and discounting the strengths that Latino families bring to the parent-professional partnership. Adopting a framework that explicitly emphasizes core Latino cultural values is important for achieving child and family outcomes (Calzada et al., 2010). See Figure 1 for a visual of how this new coaching framework may look like. Culture should be viewed as a dynamic structure rather than static (Beneke &

Ceatham, 2016). Even within broader ethnic groups, there exists such heterogeneity that it can be assumed that each family carries unique characteristics, values, and perspectives (Lynch & Hanson, 2011). Professionals should approach each partnership with enough education to understand broader Latino-specific cultural trends, but also understand that each family is unique.

**Figure 1.**

*Familismo Coaching Model (FCM)*



### **Chapter 3: Method**

#### **Recruitment**

Recruitment began in February 2023. Flyers in both English and Spanish were distributed to agencies across Washington State that served children with disabilities including local early intervention programs, local advocacy groups, and listserves for caregivers of children with disabilities.

Inclusion criteria for the caregivers required that: 1) the caregivers must be above 18 years old; 2) identify as Latino/a/Latinx/Hispanic; 3) speak fluent Spanish; 4) identify as the caregiver/parent of a young child with autism; 4) have not received caregiver/parent coaching from a BCBA; and 5) be willing to participate in the study. Inclusion criteria for the child required that: 1) the child must be younger than 8 years old, and 2) have a diagnosis of autism or be in the process of obtaining a diagnosis (i.e., on the waiting list, diagnostic appointment scheduled). See Appendix A for pre-screening survey. Demographics for each participant were collected (see Table 1). For the consenting caregiver, these demographics included identified gender, education, native language(s), occupation, and race/ethnicity. Demographics of the child included current age, age at diagnosis, type of services received, types of services currently receiving, race/ethnicity, and language(s). See Appendix B for demographic survey.

#### **Participants**

A total of four caregiver-child dyads were recruited to participate. Of those four, three dyads completed the study. One participant dropped after intervention began due to personal matters outside of the current study. Pseudonyms have been assigned to each dyad, which will be used throughout this manuscript. The caregiver-child dyads included Juliana and

Nico, Joaquín and Mateo, Yolanda and Román, and Eva and David. Each participating caregiver attended biweekly coaching meetings for one hour each and for a total of five weeks. The child in each dyad was only required to be present for the last 15-20 minutes of each session. Text message or email reminders were sent to each participant before the session, depending on their preference. For example, caregivers such as Yolanda expressed difficulty navigating emails and preferred to communicate primarily over text.

***Dyad 1: Yolanda and Román***

Yolanda resided in the Pacific Northwest with her son, Román, and her parents. Yolanda was originally from Mexico, self-reported her ethnicity as Latina, and spoke Spanish. Per Yolanda's preference, all communication was done in Spanish. Yolanda had completed high school and was a full-time caregiver to Román. Yolanda had never received caregiver coaching from a behavior analyst. Román was 2 years and 8 months old at the time of this study and was diagnosed with Autism Spectrum Disorder at 2 years old. Yolanda reported that Román had never received any type of therapeutic or educational services prior to beginning this study. Despite her desire to continue in this study, Yolanda dropped out of the study due to scheduling reasons that appeared soon after the first coaching session. Yolanda expressed a desire to re-enroll in the future if there were future opportunities.

***Dyad 2: Joaquín and Mateo***

Joaquín resided in the Pacific Northwest with his son, Mateo, his wife, and their two other children. Joaquin described his race as White, but his ethnicity as Latino/Hispanic. Joaquín was born in Mexico but grew up in the United States and was bilingual in English and Spanish. Per Joaquín's preference, all communication was done in English, although he stated that he was comfortable in both languages. In his demographic questionnaire, Joaquín

reported that he had some college experience, but was returning to college full-time in the fall. During the course of the intervention, Joaquín was a full-time caregiver to his three children. Joaquín had never received coaching from a behavior analyst. Mateo was 6 years old at the time of this study. Joaquín reported that Mateo's primary language was English but was fluent in Spanish as well. Mateo was diagnosed with Autism Spectrum Disorder at 2 years old. He had previously received Special Education, Speech, Occupational Therapy and Early Intervention (Part C) services. At the time of the study, Mateo was attending a self-contained special education kindergarten classroom for one-and-a-half hours per day, four days per week. At school, he was also receiving Occupational Therapy and Speech for 30 minutes each week.

***Dyad 3: Juliana and Nico***

Juliana resided in the Pacific Northwest with her son, Nico, and her husband. Juliana and her family were originally from Venezuela, but later moved to Colombia before finally settling in Washington State. Juliana reported her ethnicity as Latino/Hispanic and spoke Spanish. Per Juliana's preference, all communication was done in Spanish. Juliana had a college degree and was currently a full-time caregiver to Nico. Juliana had never received caregiver coaching from a behavior analyst. Nico was 5 years old at the time of this study but was diagnosed with Autism Spectrum Disorder when he was 1.5 years old and living in Venezuela. Although he already had an autism diagnosis from Venezuela, Juliana needed to get Nico re-evaluated and re-diagnosed in the US before he was eligible for autism-specific services, such as ABA. At the time the study ended, Nico was still on the waiting list for an autism diagnosis. Nico had previously received services from a Speech and Language Pathologist (SLP) and an Occupational Therapist (OT) at a local center in Colombia

(combined into one hour, once per week). During the study, Nico briefly enrolled in private OT for one month (50 minutes, once per week). Nico also received special education services in a self-contained pre-K classroom for one and a half hours four days per week.

***Dyad 4: Eva and David***

Eva resided in the Pacific Northwest with her son, David, her daughter, and her husband. Eva and her family were originally from Uruguay, but later moved to Ireland before settling in Washington State. In her demographic questionnaire, Eva reported as White and primarily spoke Spanish. When the primary researcher asked (per inclusion criteria) if she also identified as Latina, Eva clarified that she did identify her ethnicity as Latina, but her race as White. Per Eva's preference, all communication was done in Spanish. Eva reported that she had some college experience and worked as a graphic designer. Eva had never received caregiver coaching from a behavior analyst. David was 7 years old at the time of this study. David was diagnosed with Autism Spectrum Disorder at 6 years in the United States. Eva reported that David's primary language was English, but he was also fluent in Spanish and switched between the two languages fluidly during interactions. David had previously received services from an Occupational Therapist (OT) for 45 minutes, once per week, prior to the study beginning. Although Eva reported that David was not receiving any services in her initial demographic questionnaire, she later clarified that he was receiving special education services at school in a self-contained 1<sup>st</sup> grade classroom, where he attended for the full day, five days per week.

Each caregiver was eligible to receive a total of \$199 in gift cards for participating in the study. This study was approved by the University of Washington Institutional Review Board (STUDY16931). All providers and caregivers gave informed consent before

participation.

**Table 1.**

*Caregiver and Child Demographics*

<b>Caregiver Demographics</b>	<b>Yolanda</b>	<b>Joaquín</b>	<b>Juliana</b>	<b>Eva</b>
Gender	Female	Male	Female	Female
Level of education	High School	Some college	4-year university	Some college
Primary Language	Spanish	English	Spanish	Spanish
Occupation	Caregiver	Caregiver	Caregiver	Graphic Designer
Race/ethnicity	Latina	White (Latino/Hispanic)	Hispanic/Latino	White (Latino/Hispanic)
<b>Child Demographics</b>	<b>Roman</b>	<b>Mateo</b>	<b>Nico</b>	<b>David</b>
Gender	Male	Male	Male	Male
Current Age	2.8	6	5	7
Age at diagnosis	2	2	1.5	6
Primary Language	Spanish	English	Spanish	English
Race/Ethnicity	American	White (Latino/Hispanic)	Hispanic/Latino	White (Latino/Hispanic)
Previous therapies/services	None	SPED; EI; SLP; OT	SLP; OT	OT
Current therapies/services	None	SPED; SLP; OT	SPED	SPED
School Placement	None	Self-contained kindergarten	Self-contained pre-K	Self-contained 1 <sup>st</sup> grade

*Note.* SLP=speech language pathology; EI=early intervention; SPED = Special Education; OT = Occupational Therapy

### **Settings and Materials**

All intervention sessions were conducted remotely using Zoom®. When each participant was ready to begin intervention, they were each mailed a large envelope that contained four laminated handouts (see Appendix C for handout). Each handout contained descriptions of the four strategies that they would be learning throughout the intervention. Per their preference, Juliana, Yolanda, and Eva all received handouts in Spanish. Joaquín received handouts in English. Four handouts were given to each participant so that they could have multiple copies of the information. After the intervention began, the participants were instructed to place the handouts in areas that would be easily available, such as the kitchen, playroom, or living room table. The participants were also encouraged to share the materials with their spouses or any other family member.

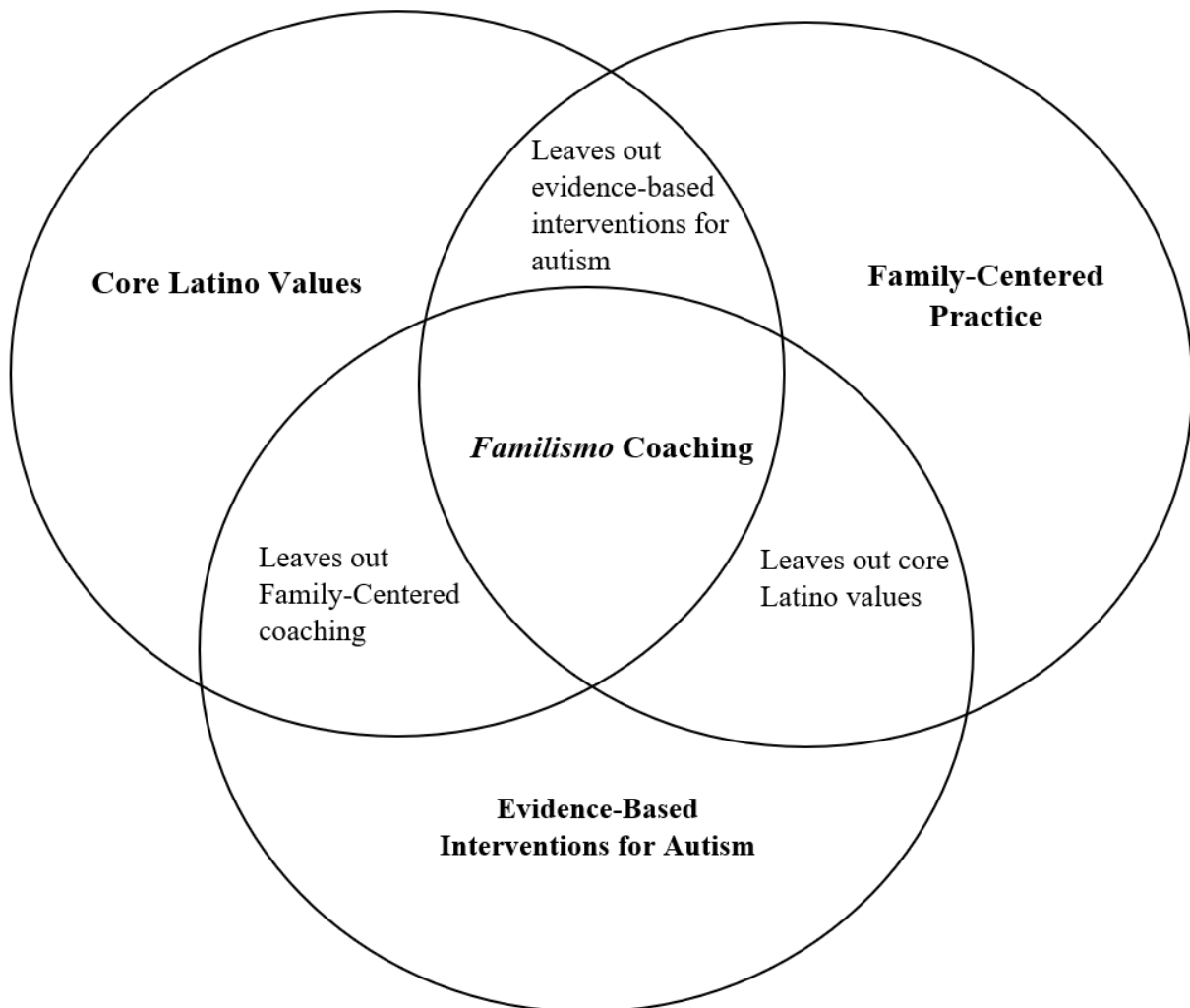
The participants were encouraged to use their children's own toys or household materials for the intervention. When intervention started, the researcher and caregiver brainstormed about what types of toys and activities would be most appropriate for their child. Participants were asked to think about what toys, routines, and activities their child spends the most time engaged in, or what they find the most joy in. They were asked questions such as, "What makes your child smile?". For example, Nico's most preferred activity was being on his swing, while David's preferred activity was creating pretend food with Play-Doh. Each caregiver spent time with the lead researcher brainstorming and discussing ways to embed learning strategies into their child's preferred activities. Mateo enjoyed a variety of toys, but was happiest Joaquín was being "silly".

## Independent Variables

The independent variable was a caregiver training and coaching intervention, the *Familismo* Coaching Model (FCM). The FCM was developed based on the current literature on supporting families with young children with autism and on cultural adaptations specific to the Latino community. See Figure 2 for a visual representation of the *Familismo* Coaching Model.

### Figure 1.

*The Familismo Coaching Model (FCM)*



The FCM has three core components: Family-Centered Practice, Evidence-Based Interventions for Autism, and Core Latino Values (CLVs). The CLVs have been determined by the literature on supporting literature on Latino values for intervention, on cultural adaptations specific to the Latino community (Bernal et al., 1995; Buzhardt et al., 2016; Domenech Rodríguez et al., 2011; DuBay et al., 2017; Zuckerman et al., 2017; Long et al., 2022). These cultural adaptations extend the work by Bernal et al. (1995), who proposed eight critical facets for culturally adapting interventions. Facets include adapting treatment in the areas of 1) Language 2) Persons 3) Metaphors 4) Content 5) Concepts 6) Goals 7) Methods and 8) Context. This model has been used in recent cultural adaptations within the behavior analytic literature with Latino families (e.g., Cañón et al., 2023). All facets were considered in the development of the FCM. For example, the coach was Latina and native Spanish-speaker who has worked with Latino families for over 10 years. This is important in building trust, or *confianza* (Casillas et al., 2021; Luelmo et al., 2022) and community within a caregiver-professional relationship (Bernal et al., 1995). Further, the coaching was done in the participant's preferred language and all content was contextualized within the Latino culture, such as traditions or child-rearing practices. The FCM is described in detail in Chapter 2. The primary tenets of the FCM are described below in Table 2.

**Table 2.**

*Tenets, incorporation, and literature of the Familismo Coaching Model (FCM)*

FCM Tenet	Incorporation into FCM	Supporting Literature
Core Latino Values	<ul style="list-style-type: none"> <li>● Coaching sessions done in preferred or native language (i.e., Spanish)</li> <li>● Coach is bilingual and Latino (or bicultural)</li> <li>● Coaching sessions build in time for relationship-building (<i>personalismo</i>)</li> </ul>	Bernal et al., 1995; Buzhardt et al., 2016; Domenech Rodríguez et al., 2011; DuBay et al., 2017;

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	<ul style="list-style-type: none"> <li>● Role of <i>familismo</i> is emphasized - extended family members are considered in coaching</li> <li>● Discussion of English terms without Spanish equivalent is done and alternative explanations are given</li> </ul>	Zuckerman et al., 2017; Long et al., 2022
Family-Centered Practice	<ul style="list-style-type: none"> <li>● Family is encouraged to utilize materials/routines available to them</li> <li>● Goals are chosen by the family</li> <li>● Coaching is contextualized in natural and everyday routines</li> <li>● Focus is on building self-efficacy in caregivers</li> </ul>	Tomasello et al., 2010; McWilliam, 2010; Barton & Fettig, 2013; Dunst et al., 2007; Dunst & Espe-Sherwindt, 2017
Evidence-Based Interventions for Autism	<ul style="list-style-type: none"> <li>● Parent-Implemented Interventions</li> <li>● Prompting</li> <li>● Reinforcement</li> <li>● Pivotal response training (PRT)</li> <li>● Naturalistic developmental behavioral interventions (NDBIs)</li> </ul>	Hume et al., 2021; Schreibman et al., 2015; Frost et al., 2021; Wong et al., 2015; Parsons et al., 2013

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**The “Core Four” Skills.** The content of coaching using the FCM was teaching the caregivers to implement the Core Four skills (OTAI, undated). These four skills (Sharing Attention, Communication, Imitation, and Turn Taking) are foundational in early childhood development (see Table 3 for list and operational definitions). The Core Four Skills was adapted from and extends the work by Penney (2016), who measured implementation of these four skills after caregivers participated in a group-based coaching format. These Core Four skills have been used extensively in caregiver coaching by the On Time Autism Intervention Project (<https://depts.washington.edu/uwautism/resources/on-time-autism-intervention/>) and stem from evidence-based NDBI strategies (Schreibman et al., 2015).

The first skill was *Shared Attention*. The purpose for the inclusion of this skill in the dependent measures was to build engagement between the caregiver and the child (e.g., Rogers & Dawson, 2010). The second skill was *Communication*. In this skill, the caregiver

learned how to embed communicative opportunities in play or natural routines, further building engagement and responsiveness to the child’s needs (e.g., Koegel & Koegel, 2006). The third skill was *Imitation*. This skill gave caregivers the opportunity to learn Reciprocal Imitation Training (RIT; Ingersoll & Schreibman, 2006) techniques to support their children in developing their imitative repertoire for any skills the caregiver deems valuable. Finally, the fourth skill was *Turn Taking*. Building from the Early Start Denver Model (Rogers & Dawson, 2010), targeting this skill encouraged reciprocity in the targeted routine, where caregivers and child are both participating equally. Together, these skills were packaged as the “Core Four” skills to the participating caregivers.

**Table 3.**

*Operational Definitions of Independent Variables: The “Core Four” Skills*

Skill	Definition	Examples/Non-Examples
<b>Shared Attention</b>	The caregiver and child engaged in the same task or with materials from the same activity. The caregiver has their attention on the child (i.e., looking at the child or in their direction) and the child has their attention <i>towards</i> the caregiver and or the materials(e.g., body turned toward caregiver or on an object held by caregiver).	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Caregiver and child are both looking at a book.</li> <li>• Caregiver is looking at child, while child is looking at the materials.</li> <li>• Caregiver and child are smiling at each other.</li> </ul> <p><b>Non-Examples:</b></p> <ul style="list-style-type: none"> <li>• Caregiver is looking at child, but child is looking away.</li> <li>• Child walks away from activity.</li> </ul>
<b>Communication</b>	Caregiver provides opportunity for child to respond through verbalization or physical manipulation of the environment (e.g., asks the child, “what is this?” while pointing a picture or holds up a favorite toy and waits for communication).	<p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Caregiver holds up a toy and waits for a point.</li> <li>• Caregiver stops reading, points to a picture, and says, “what’s that?” and waits.</li> <li>• Caregiver models the sign for “more” and waits.</li> </ul>

**Imitation** The caregiver models a new action and then either waits for the child's response or facilitates the child in imitating this action.

**Non-Examples:**

- Caregiver asks questions such as, "where are the cars going? To the store?" without expecting an answer.
- Caregiver models words without waiting for child communicative attempt.

**Examples:**

- Caregiver models cars jumping and waits.
- Caregiver models a baby sleeping but the child does not imitate.

**Non-Examples:**

- Caregiver models action without waiting for child.
- Caregiver imitates the child.

**Turn Taking** The caregiver takes a short turn (~3-5 seconds, depending on the child) with an object and then returns the object back to the child, following their lead.

**Examples:**

- Caregiver takes a 3 second turn with a car, then returns it.
- Caregiver takes turn, stirring pretend soup, but the child walks away.

**Non-Examples:**

- Caregiver takes the item but does not return it.

**Figure 3.**

*Description of Core Four Handout for Caregivers (in English)*

**Always Remember...**

- Sit close to and facing your child (put materials in the middle)
- Follow your child's interests and describe what they're doing
- Use simple language – the "one up" rule
- Focus on FUN!

<p style="text-align: center;"><b>1) <u>Sharing Attention</u></b></p> <ul style="list-style-type: none"> <li>• Be a helpful partner</li> <li>• Establish an enjoyable routine</li> <li>• After a few times, pause with anticipation and look for the shared attention before continuing</li> </ul>	<p style="text-align: center;"><b>2) <u>Communication</u></b></p> <ul style="list-style-type: none"> <li>• Give a little for free (blow the bubbles, sing a line from the song, etc.)</li> <li>• Pause and model the word</li> <li>• Wait until they say or attempt the word</li> <li>• Give the item and praise!</li> <li>• Try again after your child has had a bit of time to enjoy the toy/item/activity</li> </ul>
<p style="text-align: center;"><b>3) <u>Imitation</u></b></p> <ul style="list-style-type: none"> <li>• Follow your child's movements around the room</li> <li>• Imitate your child's actions (intentional and unintentional), words, and sounds</li> <li>• Model a new action every 1-2 minutes - be silly!</li> <li>• Wait 10 seconds before modeling again (up to 3 times)</li> <li>• Help your child imitate you</li> <li>• Return to imitating your child</li> </ul>	<p style="text-align: center;"><b>4) <u>Turn Taking</u></b></p> <ul style="list-style-type: none"> <li>• Establish an enjoyable routine</li> <li>• Take a <i>quick</i> turn with the toy, do something interesting or silly (make sure they see)</li> <li>• Return the toy</li> <li>• Continue to take turns back and forth for as long as your child seems interested in the activity</li> </ul>

### ***Dependent Variables***

Caregiver behavior was measured using the *Naturalistic Developmental Behavior Intervention Fidelity Rating Scale (NDBI-Fi; Frost et al., 2020)*. The *NDBI-Fi* is an eight-item observational rating scale that measures caregiver implementation of key NDBI components. See Appendix D for operational definitions of all eight items. The fidelity items in the *NDBI-Fi* are:

- 1) Face-to-Face and on the Child's Level
- 2) Following the Child's Lead
- 3) Positive Affect and Animation
- 4) Modeling Appropriate Language

- 5) Responding to Attempts to Communicate
- 6) Using Communicative Temptations
- 7) Pace and Frequency of Direct Teaching Episodes
- 8) Quality Indicators of Direct Teaching Episodes.

The *NDBI-Fi* has been shown to be a reliable and valid measurement tool for a variety of parent-implemented early intervention studies (Sone et al., 2021). Although the caregivers learned how to implement the Core Four skills (Sharing Attention, Communication, Imitation, and Turn Taking), each skill is based on NDBI strategies and can be measured using the *NDBI-Fi*. For example, when targeting a Core Four skill such as Communication during a play routine, the caregiver should always be following, at minimum, *NDBI-Fi* items 1-4 (Face-to-Face, Following the Child's Lead, Positive Affect and Animation, and Modeling Appropriate Language). See Table 4 for a comparison of the Core Four and *NDBI-Fi*.

**Table 4.**

*Core Four Components and NDBI-Fi Items*

Core Four Component (Independent Variables)	NDBI-Fi Item (Dependent Variables)
1. Sharing Attention	<ul style="list-style-type: none"> <li>• Face-to-face and on the child's level</li> <li>• Following the child's lead</li> <li>• Positive Affect and Animation</li> <li>• Modeling Appropriate Language</li> <li>• Responding to Attempts to Communicate</li> <li>• Using Communicative Temptations</li> </ul>

- Face-to-face and on the child's level
  - Following the child's lead
  - Positive Affect and Animation
  - Modeling Appropriate Language
  - Responding to Attempts to Communicate
  - Using Communicative Temptations
  - Pace and Frequency of Direct Teaching Episodes
  - Quality of Direct Teaching Episodes
2. Requesting
- Face-to-face and on the child's level
  - Following the child's lead
  - Positive Affect and Animation
  - Modeling Appropriate Language
  - Pace and Frequency of Direct Teaching Episodes
  - Quality of Direct Teaching Episodes
3. Imitation
- Face-to-face and on the child's level
  - Following the child's lead
  - Positive Affect and Animation
  - Modeling Appropriate Language
  - Pace and Frequency of Direct Teaching Episodes
  - Quality of Direct Teaching Episodes
4. Turn Taking
- Face-to-face and on the child's level
  - Following the child's lead
  - Positive Affect and Animation
  - Modeling Appropriate Language
  - Pace and Frequency of Direct Teaching Episodes
  - Quality of Direct Teaching Episodes

The caregiver videos (10 minutes in length) were collected following the directions for the *NDBI-Fi* and observers were trained using the materials associated with the measure. Following the directions of Frost and colleagues, each video was rated in two passes. The videos were first rated at 70% speed to allow the rater time to pause and write notes on the data sheet. Then, using a 1-5 Likert scale with operational definitions provided in the *NDBI-Fi* manual, caregiver fidelity of implementation of the eight items were rated twice. A maximum of 40 points were possible for each video (see Appendix E for *NDBI-Fi* data sheet). Per the *NDBI-Fi* manual instructions, the score was then divided by 40 and then multiplied by 5 to give an average rating. Thus, this gave each caregiver a final average for every video (e.g., a caregiver who scored a total of 35 points would have an average score of

4.38). The fidelity scores were graphed on a multiple probe graph.

**Child Behavior.** Data was collected on the child’s Spontaneous Communication and Response to Caregiver Communication. Spontaneous Communication was defined as “any form of communicative attempt in the form of labeling, commenting, or requesting using either their body (e.g., point, nodding, sign language, etc.), voice, or through augmentative and alternative communication (AAC) devices”. Examples included pointing to a toy, approximating a “more” sign, or commenting to the caregiver. Non-examples included babbling or scripting to themselves, smiling or eye contact, responding to the caregiver, or echolalia. See Table 5.

Response to Caregiver Communication was defined as “after the caregiver intentionally targets communication (e.g., asking “what do you want to do?”, mom stops the swing and prompts, “m--” for “more”, asking “what’s next?”), the child responds independently or with minimal prompting”. Examples included the child nodding when the adult asks a question, sign language with a partial physical prompt, or answering questions. Non-examples included no response, full physical prompted responses, requesting spontaneously, taking toys, following directions, or echolalia. The child behaviors were measured using a 10-second partial interval data sheet for 10 minutes, thus giving 60 total intervals of data (see Appendix F). To highlight the essential dependent variables in the child data, Response to Caregiver Communication and Spontaneous Communication were summed to create Total Intervals Communication, which was graphed and analyzed for each child.

**Table 5.**

*Child Dependent Measures*

<b>Skill</b>	<b>Definition</b>	<b>Examples/Non-Examples</b>
Child Spontaneous Communication	Any form of communicative attempt in the form of labeling, commenting, or	<b>Examples:</b> <ul style="list-style-type: none"> <li>• Child points to a toy across the room</li> </ul>

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Child Response to Caregiver Communication	<p>requesting using either their body (e.g., point, nodding, sign language, etc.), voice, or through augmentative and alternative communication (AAC) devices.</p> <p>Child response to the caregiver's communication (e.g., caregiver asks a question, makes a comment, offers a choice, etc.) through vocal speech, gesture, sign language, etc.</p>	<ul style="list-style-type: none"> <li>• Child approximates a “more” sign by clapping.</li> </ul> <p><b>Non-Examples:</b></p> <ul style="list-style-type: none"> <li>• Child babbles to themselves</li> <li>• Child points <i>after</i> a caregiver holds up an item.</li> </ul> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• Caregiver offers two items and child points to one of them</li> <li>• Child nods when adult asks, “do you want the car?”</li> </ul> <p><b>Non-Examples:</b></p> <ul style="list-style-type: none"> <li>• Child does not respond, responds incorrectly, or needs prompting.</li> <li>• Child requests spontaneously</li> </ul>
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**Parenting Sense of Competence Scale.** A modified version of the Parenting Sense of Competence Scale (PSOC) was used in the study (Menéndez et al., 2011). The Parenting Sense of Competence Scale (PSOC) is a scale that measures caregiver competence over two dimensions: self-efficacy (i.e., self-confidence, capability, problem solving) and satisfaction (i.e., anxiety, motivation, frustration) through a 17-item survey (Gibaud-Wallston & Wandersman, 1978). However, the original is only available in English, therefore a modified version of the scale was used (see Appendix G). This PSOC was translated into Spanish and shortened the original 17-item scale into 10 items (Menéndez et al., 2011). The scale utilizes a 1-6 Likert scale rating system, whereby some pre-determined questions are reverse-coded (e.g., a score of 1 is coded as a 6 and added to the total score). A higher score is indicative of a higher sense of parental competency (Gibaud-Wallston & Wandersman, 1978). Responses from pre and post intervention were compared and analyzed.

**Social Validity.** Social validity was measured after the completion of the intervention. Social validity was collected in two parts 1) a short questionnaire administered through RedCap and 2) a short interview over Zoom with the lead researcher (see Appendix G). The REDCap questionnaire entailed eight questions answered through a 1-5 Likert scale regarding the feasibility and usefulness of the study, ending with a space for open-ended comments. Following this, the social validity interview over Zoom included six open-ended questions regarding their perceptions of participating in this study, the usefulness of the coaching intervention, and the likelihood of retaining the skills taught after the study ends. The interviews lasted approximately 5-10 minutes and were administered after completion of all other data collection procedures.

### ***Additional Measures***

**Fidelity of FCM implementation.** A fidelity checklist was used to score procedural fidelity of implementation of the coaching intervention (See Appendix H). This fidelity checklist listed the steps for implementing the *Familismo* Coaching Model (FCM) and assessed whether the intervention was implemented as intended. The fidelity checklist was completed using self-report at the end of each coaching session with a score of 1 (yes) or 0 (no). Fidelity measures were collected for 100% of intervention sessions.

### ***Procedures***

**Baseline.** During baseline, caregivers were asked to engage in a typical activity with their child for 10 minutes while the lead researcher recorded. They were encouraged to choose an activity that they do daily (e.g., mealtime) or frequently (e.g., reading a book, playing with cars), but were given no further instruction other than to “play or interact as you normally would and face the camera toward you”. The coach then renamed the caregiver

using a pre-determined and de-identified code (e.g., participant 1 was designated as “P1”) and turned off her camera. The coach then set a timer and pressed record on Zoom. The video was stored on a secure cloud-based storage file under the de-identified name and session number. For example, the first baseline video for participant 3 was filed as P3\_BL1. The dependent variables (i.e., *NDBI-Fi* and child data) were coded and graphed by one of two independent coders until the first caregiver showed a stable baseline trend of at least 4 data points. Although the goal was to continue the baseline for 5 data points, the study wanted to remain responsive to the needs of each caregiver, as the first participant was eager to begin the coaching.

***Familismo* Coaching Model (FCM) Intervention.** One caregiver-child dyad began intervention at a time. After the participant was ready to begin the FCM intervention, they were notified via email or text and a session time was agreed upon. The coach then mailed the Core Four caregiver handouts to the caregiver’s home before the session was set to begin. During the first session, the coach and caregiver spent some time getting to know each other before reviewing the Core Four skills. Each coaching session consisted of 1) a thorough description of the 4 skills and how they work together, including examples 2) the coach modeling the skills 3) the caregiver practicing with the child 4) feedback given in the moment 5) time for questions. See Appendix I. This sequence followed the Behavior Skills Training (BST; Parsons et al., 2013) protocol. However, it was adapted to include space for the caregiver to practice with their own child and receive feedback in the moment, rather than only roleplaying. Additionally, the time for questions was not only limited to the end; rather, the caregiver asked questions at any point. During the intervention, the caregiver was encouraged to place the Core Four handouts in spots that were easily accessible (e.g., on the

refrigerator) so that they could practice in between coaching sessions.

After the initial training, the coach and caregiver then moved onto the next item on the agenda, which was recording. The coach instructed the caregiver to place their phone, tablet, or laptop where they will both be visible and begin their chosen activity in a way that feels natural and fun, keeping the Core Four skills in mind. When the caregiver felt ready, the coach then recorded for 10 minutes via Zoom. After the recording, the coach and caregiver moved to the next item on the agenda, which was a debrief of the session. The debrief included space where the coach and caregiver reflected together on what went well, what was difficult, and feedback on how the caregiver can practice until the next session. The coach emailed each caregiver a copy of the agenda (which included notes and feedback) immediately following each session. Some individual adaptations were made. For example, Joaquín's notes were all in English and emailed to both him and his wife. Yolanda preferred text message communication, so a screenshot of the agenda was sent to her through text in addition to the emailed feedback.

The coach and caregiver opened each session with open-ended dialogue and check-ins. This time was critical in building a bidirectional, trusting, relationship with each caregiver before simply diving into the content. After this, the coach then transitioned into the opening questions, including how they practiced the skill, what was still difficult, and what felt better than last time. If they did not get the chance to practice the skill, the coach and caregiver reflected on why, then addressed any potential barriers. As needed, the coach and caregiver reviewed the skills, including going through the BST training steps (e.g., description, model, rehearsal, feedback, questions). Then, the coach and caregiver reviewed the video from the session before. During this time, the coach provided reinforcement on

what behaviors contributed to positive gains in the session (e.g., a caregiver who exaggerated their affect for the first time) and gave ideas on how to expand the activity (e.g., “when Nico laughed, you could swing him again to reinforce that and keep the fun game going – he loves playing swing with you!”). The caregiver and coach then moved into recording and feedback when the caregiver felt ready. After each session, the implementor independently self-evaluated the session for fidelity.

### **Data Collection**

**Measurement.** In addition to baseline sessions, caregivers completed 10 intervention sessions (over the course of 5 weeks), plus one follow-up session after two weeks. Data collection was completed by two masters students who both served as primary coders. These students were masters students in ABA who both identified as Latina women and were bilingual in Spanish and English. All members of the coding team had completed the human research course by Collaborative Institutional Training Initiative (CITI). Prior to data collection beginning, coders were trained by the primary researcher who showed them videos of a child and caregiver playing together. The research team met to discuss agreements and disagreements until fidelity was reached.

To decrease any opportunity for bias or subjective rating, the primary coders were not told any information regarding the videos to be coded, the phase that the participant was in (i.e., baseline or intervention), or the background of the family. The videos were pre-assigned to each coder using a random number generator in Excel® to distribute the videos to each coder equally. The videos were then dropped into each coder’s independent OneDrive folder. The participant number and session number were removed and replaced with generic numbering (e.g., “Video 1”) to further remove any potential for bias. In total, each student

coded 26 videos.

**Reliability.** Inter-observer agreement was collected for 100% of the data gathered. The primary researcher served as the reliability coder, while the students each served as primary coders. The skills for the caregiver were scored using the *NDBI-Fi* data sheet. For agreement on the caregiver data, the recommendations from Frost et al. (2020) were used. Raters were reliable when: seven fidelity items were within one point of each other, no items were more than two points apart, and the overall score was within .5 points (Frost et al., 2020).

A separate data sheet was used for the child data. For the child data, agreement was defined as both data collectors individually scoring the presence of a child target behavior emitted within the 10-second time interval. IOA for the child data was calculated by adding up total agreements, then dividing this by agreements + disagreements and multiplying by 100.

**Procedural Fidelity.** Procedural fidelity was calculated to measure the implementor's accuracy in completing each session according to the checklist. This was completed through a self-checklist after each session and was calculated by dividing the total number of steps completed (coded as a "1") over the total number of steps in the checklist. To preserve a genuine connection and natural pace to the coaching sessions, the entire session was not video recorded.

### **Experimental Design**

A non-concurrent multiple probe across participants design was used to measure the effectiveness of the *Familismo* Coaching Model in teaching foundational interaction and communication skills to caregivers. In a nonconcurrent multiple probe design, the

independent variable is introduced to one participant at a time, whereby the baseline and intervention data are compared to determine if there is a functional relationship between the independent and dependent variables (Horner & Baer, 1978; Slocum et al., 2022). However, in contrast to a multiple baseline design with continuous baseline measurement, a multiple probe collects baseline data intermittently (Ledford & Gast, 2018). Using a non-concurrent multiple probe design allows for improved ethical treatment access, as participants in later tiers do not have to wait in extended baselines (Ledford & Zimmerman, 2022), which is important, given that the population under study is a historically marginalized community and may already have experienced higher disparities in access to treatment (Zuckerman et al., 2017). Additionally, a multiple probe is more practical, as the participants met with the coach twice per week for coaching sessions. The study began by measuring baseline probes for each participant. To ensure this quantitative intervention met rigorous standards, it followed the What Works Clearinghouse (WWC) Single-Case Research Design (SCRD) standards (Kratochwill et al., 2013). Six design standards included: 1) Manipulation of the independent variable 2) Dependent variable is measured repeatedly 3) Interobserver agreement (IOA) is reported for at least 20% of sessions across conditions and behaviors 4) IOA is reported to be greater than 80% across conditions 5) There are at least 3 attempts to demonstrate a treatment effect and 6) There are at least 3 data points for each phase (Kratochwill et al., 2013). While the goal was to gather 5 baseline data probes (WWC, 2020) for each participant, many of the caregivers demonstrated eagerness to begin intervention.

### **Data Analysis**

All data (percentage of time intervals where a skill is being implemented) were graphed individually for each caregiver-child dyad. Visual analysis occurred throughout the

study to make decisions regarding when the next phase of the intervention will start. Ledford and Zimmerman (2022) suggest this as a practical and ethical way to conduct multiple baseline and multiple probe designs, as having predetermined baseline session numbers does not allow for response-guided treatment. Baseline data was gathered for a minimum of three sessions. When there was little variability or change in level, the dyad was then moved to intervention. When a participant was moved into intervention, their response to intervention was analyzed to ensure a stable trend before moving on to a new participant. After each dyad was in the intervention phase, data across all tiers were analyzed using visual analysis. Visual analysis examined the level, trend, and variability of data across each phase. Additionally, the data between phases was also analyzed by looking at immediacy of effect, consistency of patterns, and whether there is any overlap between baseline and intervention phases (Lobo et al., 2017).

The social validity data were analyzed by reviewing the transcripts and questionnaire responses. The researchers also determined whether this intervention was acceptable and feasible by collecting a follow-up probe two weeks after the last coaching session, which indicated that the taught skills retained.

Lastly, the scores of the parenting sense of competence scale (Gibaud-Wallston & Wandersman, 1978; Menéndez et al., 2011) were compiled together to determine if the caregivers' scores have changed. Per the original publication the scoring of this scale states that a higher score correlates with a higher sense of parental competency. Therefore, a higher score after the FCM intervention indicated that this coaching resulted in a higher sense of competency for these caregivers.

## Chapter 4: Results

Four caregiver-child dyads participated in the present study, which examined the implementation of the *Familismo* Coaching Model (FCM) in teaching caregivers basic naturalistic language interventions with their children. Only three dyads completed the study, as one caregiver withdrew due to scheduling conflicts. The results suggest that the intervention was effective in teaching the caregivers to implement four foundational strategies with their young children. Dependent variables reported in this study include the caregivers' implementation of the *NDBI-Fi* rating scale (Frost et al., 2020) after being taught the Core Four Skills (OTAI, undated). Children's behavior was measured through partial interval recording of spontaneous communication, responding to caregiver's communication, and total intervals of communication. The caregivers completed a modified version of the Parenting Sense of Competence Scale (PSOC; Menéndez et al., 2011) pre and post intervention. Additionally, social validity data was measured in the form of a questionnaire and brief interview. These data are reported below.

### **Implementation as Measured by the NDBI-Fi**

The *NDBI-Fi* was used to evaluate the caregivers' quality of interaction with their children. This measure scored sessions before and after training (i.e., baseline and intervention). Coding of the *NDBI-Fi* followed the directions provided by the developer of this measure (Frost et al., 2021). Data were collected using 10-minute videos of any routine chosen by the caregiver (e.g., coloring, blocks, songs, etc.). All caregivers showed an immediate increase in their implementation of the *NDBI-Fi*, despite learning four simple strategies (i.e., the Core Four skills, OTAI). Upon implementation of the FCM intervention and teaching of the Core Four skills, all caregivers showed a significant increase in the level of their data. While some caregivers showed

initial variability in the trend, all data stabilized when intervention ended. High *NDBI-Fi* scores were maintained upon a two-week follow-up. Data are displayed in Figure 4.

### ***Yolanda***

A total of three baseline data points were gathered for Yolanda. During baseline, Yolanda's *NDBI-Fi* scores ranged from .63 to 1.5, with an average score of 1.04 (see Table 6). Yolanda had difficulty interacting with her son Román. Although she sat on his level, she did not embed any teaching opportunities, follow his lead, use positive affect and animation, or use any communicative temptations. Yolanda would attempt to get her son's attention by making noises, clapping, or saying, "come here" in Spanish. After the first day of the FCM implementation, Yolanda demonstrated an immediate increase in the level of her *NDBI-Fi* scores. Her first and only intervention score was 2.38, which was 1.34 points higher than her average baseline. In this first session, Yolanda was encouraged to consider what made Román laugh and to think about having fun in their play routine. Yolanda spent the first recording tickling Román and playing games on their bed. Yolanda only had one intervention data point and then needed to withdraw from the study due to personal circumstances. No further data was collected. Yolanda's mean *NDBI-Fi* scores are displayed in Table 6.

**Table 6.**

*Caregiver Mean NDBI--Fi Scores Across Baseline and Intervention*

<b>NDBI-Fi Item</b>	<b>Yolanda</b>		<b>Joaquín</b>		<b>Juliana</b>		<b>Eva</b>	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1. Face to face and on the child's level	1.67	5.00	2.50	4.82	2.80	4.82	2.33	4.78
2. Following the child's lead	1.67	5.00	2.75	4.64	2.00	4.36	3.17	4.78
3. Positive affect and animation	1.33	5.00	2.50	4.73	2.80	4.64	3.33	4.78

4. Modeling appropriate language	1.00	2.00	2.00	4.45	1.00	3.64	2.33	4.56
5. Responding to attempts to communicate	1.00	0.00	3.00	4.55	1.80	3.91	3.00	4.78
6. Using communicative temptations	0.67	1.00	1.00	4.45	1.40	3.64	1.33	4.00
7. Pace and frequency of direct teaching opportunities	0.67	1.00	3.75	4.45	3.00	4.45	2.83	4.67
8. Quality of direct teaching opportunities	0.33	0.00	3.00	4.73	2.40	4.36	2.50	4.56
<b>Total Mean Score</b>	<b>1.04</b>	<b>2.38</b>	<b>2.56</b>	<b>4.60</b>	<b>2.15</b>	<b>4.23</b>	<b>2.60</b>	<b>4.61</b>

### *Joaquín*

A total of four baseline data points were gathered for Joaquín. During baseline, Joaquín's *NDBI-Fi* scores ranged from 2.13 to 2.88, with an average score of 2.56. Joaquín usually played on Mateo's level, except when they were seated side-by-side at a table. Joaquín had a neutral affect throughout baseline but was consistent in responding to Mateo's communication. However, Joaquín did not use language that was matched to Mateo's language abilities in baseline. Further, Joaquín often asked rhetorical questions or did not follow his questions/instructions with any prompting or reinforcement.

When the intervention was implemented, Joaquín demonstrated an immediate and large increase in level (see Figure 4). His first intervention score was 4.62, which was 2.06 points higher than his average baseline. Joaquín was encouraged to consider what his goals for Mateo were (in alignment with FCM's Core Latino Values). Joaquín wanted Mateo to enjoy time spent with his father; therefore, Joaquín was encouraged to get Mateo to laugh and then attempt teaching once motivation was established. Joaquín's goals for himself were to "be present" with

Mateo. In the first session, Joaquín had an immediate change in his affect and energy levels. For example, Joaquín and Mateo both had shared laughter over the tickle game that Mateo requested. This enabled Joaquín to utilize this motivation for teaching (e.g., having Mateo finish his sentence when he said “1...2...” and Mateo shouted “3!”). Joaquín had a total of 10 intervention data points, with a range of 3.75 to 5.0 and an average of 4.56. Joaquín maintained the high level of implementation during his two-week follow up data collection, where his score was 5.0 (see Figure 4). Joaquín’s mean *NDBI-Fi* scores are displayed in Table 6.

### ***Juliana***

A total of five baseline data points were gathered for Juliana. During baseline, Juliana’s *NDBI-Fi* scores ranged from 1.75 to 2.38, with an average score of 2.15. Juliana played on her child’s level about half of the time, but frequently placed him in her lap or turned away from him. Juliana also frequently directed Nico in their play and used language that was far above his current speech. Juliana’s affect was positive throughout baseline, but she did not target any communication from Nico or embed teaching opportunities within their activity. Juliana frequently missed opportunities to respond to Nico’s body language and non-verbal cues that he did not want to engage in the activity, resulting in frustration in Nico and Juliana.

When the intervention was implemented, Juliana demonstrated an immediate increase in level (see Figure 4). Her first intervention score was 3.75, which was 1.5 points higher than her average baseline. Juliana was encouraged to consider what her goals for Nico were (in alignment with FCM’s Core Latino Values). Juliana stated that she wanted Nico to be able to communicate, play with one item at a time, and follow simple directions. Juliana’s goals for herself were to enjoy time with her son. In the first session, Juliana was taught to find the motivation and joy in their play, then utilize this to embed communicative opportunities. For example, when playing on the swing, Juliana could pause and model “more” in sign language (given that Nico did not

have verbal speech). In the first session, Juliana immediately embedded teaching and gave Nico several opportunities to request successfully. Juliana received 10 coaching sessions. Data from the videos associated with these sessions demonstrated a sustained increase in the implementation of strategies with a range of 3.75 to 4.87 and an average of 4.19. Juliana maintained consistently high implementation of the *NDBI-Fi* during her two-week follow-up, with a score of 4.6. Juliana's mean *NDBI-Fi* scores are displayed in Table 6.

### *Eva*

A total of six baseline data points were gathered for Eva. During baseline, Eva's *NDBI-Fi* scores ranged from 2.13 to 3.0, with an average score of 2.60. Eva played on her child's level, but rarely faced him and frequently asked rhetorical questions or attempted to embed teaching without following through. Eva's affect was positive throughout baseline, but she did not regularly use communicative temptations or follow her child's lead. David had no reported language delays and, while this resulted in high Spontaneous Communication (see David's results below), Eva reported that it was difficult for them to have a conversation in which they took turns.

When the intervention was implemented, Eva demonstrated an immediate increase in the level of *NDBI-Fi*. Eva was encouraged to consider what goals she had for David (in alignment with FCM's Core Latino Values). Eva stated that she wanted David to enjoy playtime with her and that she also wanted to enjoy this time, as she found playtime difficult. Her first intervention score was 4.0, which was 1.4 points higher than her average baseline. Eva demonstrated an immediate increase in her ability to follow David's lead, be engaged face to face with him, and model appropriate language (without asking rhetorical questions). Eva's affect and animation also increased. Eva had a total of 10 intervention data points, with a range of 3.25 to 5.0 and an

average of 4.61. During her two-week follow-up session, Eva maintained her high fidelity of implementation with a score of 5.0. Eva's mean *NDBI-Fi* scores are displayed in Table 6.

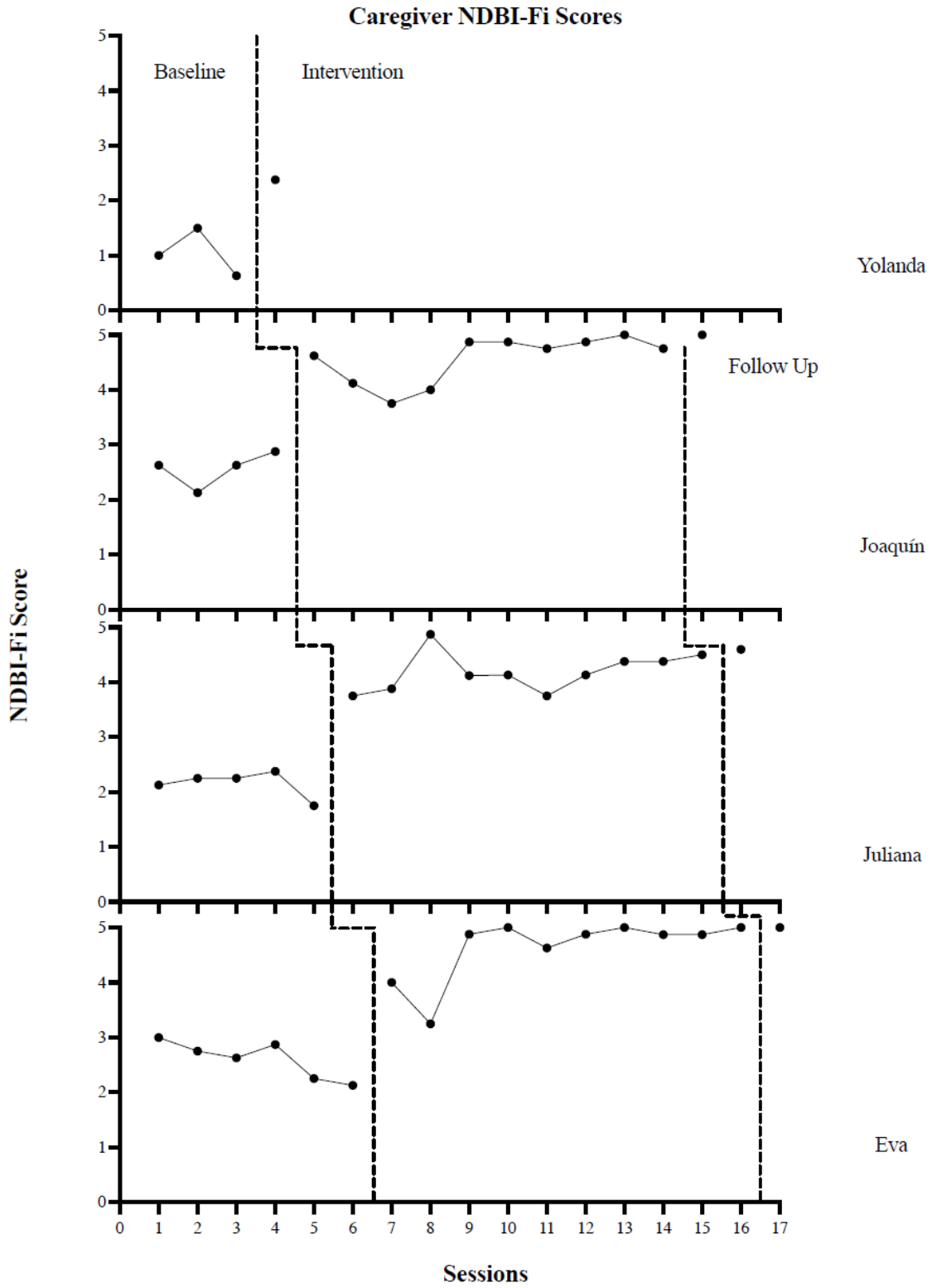


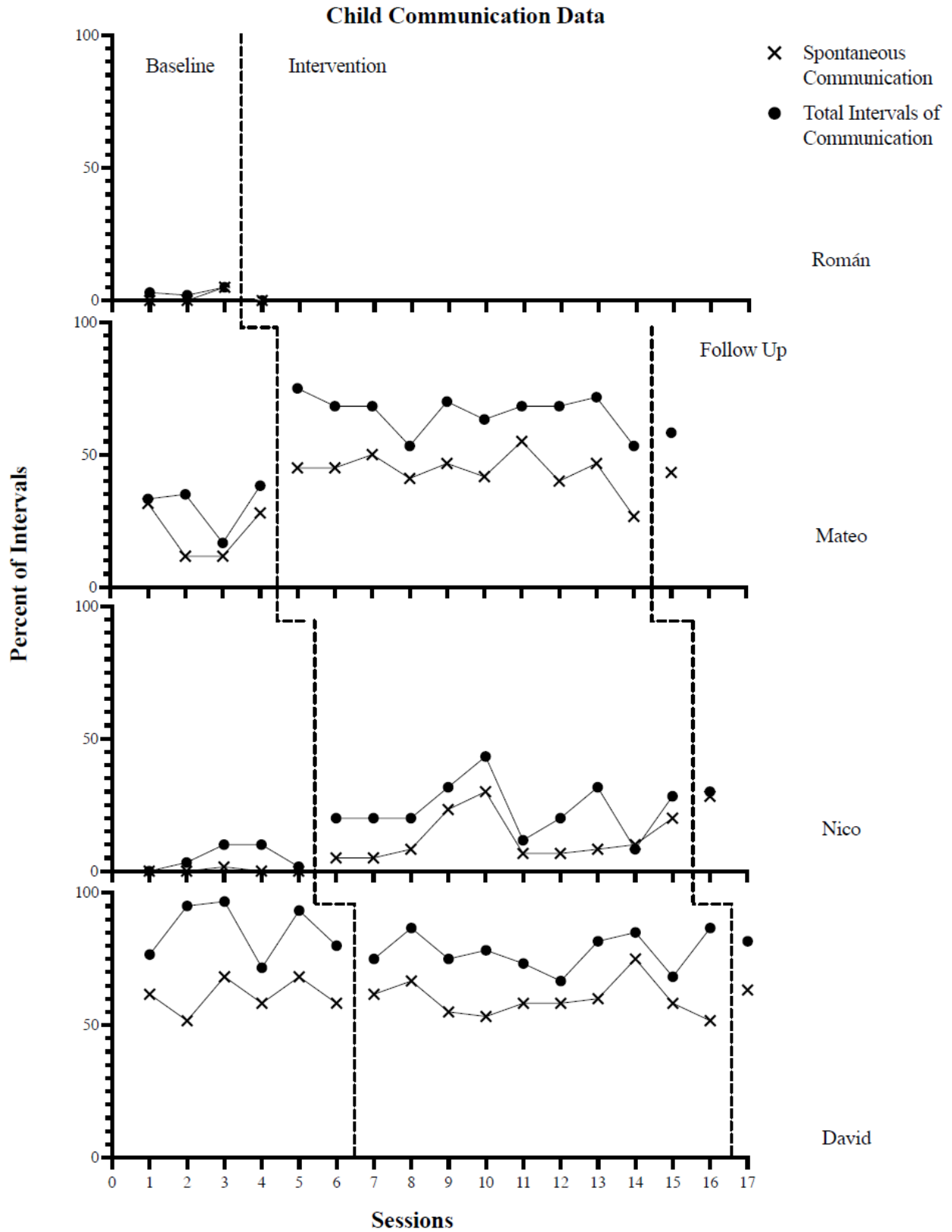
Figure 4. Caregiver Implementation of NDBI-Fi

**Child Data**

Child dependent variables included Spontaneous Communication, Response to Caregiver Communication and Total Intervals of Communication (derived by summing Spontaneous Communication and Response to Caregiver Communication). Spontaneous Communication and Total Intervals of Communication for each child are displayed in Figure 5.

***Román***

Román began baseline with low levels of communication. During baseline, Román ranged from 0% to 5% of intervals with Spontaneous Communication. Román ranged from 2% to 10% of intervals with either Spontaneous Communication or Response to Caregiver Communication (i.e., Total Intervals of Communication) and averaged 3% of intervals with any communication during baseline. Only one intervention data point was gathered for Román, as his mother Yolanda needed to drop out of the current study. In the intervention data point, no communication from Román was observed. See Figure 5.



**Figure 5.** Child Spontaneous Communication and Total Intervals of Communication

***Mateo***

Mateo began baseline with moderate levels of communication. During baseline, Mateo ranged from 11.7% to 31.6% and averaged 20.8% of intervals with Spontaneous Communication. Mateo ranged from 16.7% to 38.3% and averaged 30.8% for Total Communication during baseline.

When the intervention was implemented with Joaquín (Mateo's father), Mateo had an immediate increase in level and for both Spontaneous Communication and Total Intervals of Communication, with the trend remaining steady until Mateo showed a slight decrease in level in session 14. Mateo had a total of 10 intervention data points, with a range of 26.7% to 55% and an average of 43.8% of intervals containing Spontaneous Communication. Mateo had a range of 53.3% to 75% and an average of 66% for Total Intervals of Communication. During a two-week follow-up probe, Mateo demonstrated 43.3% of intervals with Spontaneous Communication and 58.3% for Total Intervals of Communication. See Figure 5.

***Nico***

Nico began baseline with low levels of communication. During baseline, Nico ranged from 0% to 1.6% of intervals with Spontaneous Communication. During his 5 baseline sessions and out of 300 possible intervals, Nico demonstrated 1 instance of Spontaneous Communication and thus averaged .3% of intervals with Spontaneous Communication. Nico ranged from 0% to 10% of intervals with either Spontaneous Communication or Response to Caregiver Communication (i.e., Total Intervals of Communication) and averaged 5% of intervals with any communication.

When the intervention was implemented with Juliana (Nico's mother), Nico had a gradual increase in level and trend for both Spontaneous Communication and Total Intervals of

Communication. Nico demonstrated some variability in his trend, with data decreasing in sessions 11 and 14 before increasing again in session 15. Nico had a total of 10 intervention data points, with a range of 5% to 30% of intervals containing Spontaneous Communication and a range of 8% to 43% for Total Intervals of Communication. Nico demonstrated an average of 12.3% intervals with Spontaneous Communication and 23.5% intervals for Total Intervals of Communication. During follow-up, Nico demonstrated 28.3% of intervals containing Spontaneous Communication and 30% for Total Intervals of Communication. See Figure 5.

### ***David***

David began baseline with high levels of communication. During baseline, David ranged from 51.7% to 68.3% and averaged 61.1% of intervals with Spontaneous Communication. David ranged from 71.7% to 96.7% and averaged 85.6% for Total Intervals of Communication (both Spontaneous Communication and Responding to Caregiver Communication) during baseline.

When the intervention was implemented with Eva (David's mother), David showed a slight decrease in level. David had a total of 10 intervention data points, with a range of 53.3% to 75% and an average of 59.8% of intervals containing Spontaneous Communication. David had a range of 66.7% to 96.7% and an average of 77.7% for Total Intervals of Communication. During a two-week follow-up probe, David demonstrated 63.3% of intervals containing Spontaneous Communication and 81.7% of intervals containing Total Communication.

### **Percentage of Non-Overlapping Data (PND)**

#### ***Caregivers***

The Percentage of Non-overlapping Data (PND; Scruggs & Mastropieri, 1994) was calculated for each caregiver. All caregivers had a PND score of 100%, indicating that none of their

intervention data points overlapped with their baseline scores and thus the intervention was very effective for all caregivers of this study.

### ***Children***

The Percentage of Non-overlapping Data (PND; Scruggs & Mastropieri, 1994) was calculated for each child. Mateo's PND score from baseline to intervention and was 92.8% for Spontaneous Communication and 85.7% for Total Intervals of Communication, indicating that the intervention was very effective for Mateo's Spontaneous Communication and effective for his total communication. Nico's PND score from baseline to intervention was 100% for Spontaneous Communication and 93.3% for his Total Intervals of Communication, indicating that the intervention was very effective for Nico's communication. David's PND score for Spontaneous Communication was 11.11% and 0% for Total Communication, indicating that the intervention had no effect on his communication levels.

### **Parenting Sense of Competence Scale**

A modified version of the Parenting Sense of Competence Scale (PSOC; Gibaud-Wallston & Wandersman, 1978; Menéndez et al., 2011) was given to the participants pre and post intervention. According to the original authors and developers of the PSOC, a higher score indicates a higher sense of parental competence, as measured through parental self-efficacy and parental satisfaction (Gibaud-Wallston & Wandersman, 1978). Lower scores on the PSOC have been associated with negative mental health outcomes such as depression, stress, or fatigue (Oltra-Benavent et al., 2020). All three caregivers reported higher scores at the end of the study, as compared to their scores in baseline. Caregiver responses pre and post intervention are reported individually below and in Table 7.

### ***Joaquín***

Joaquín's initial score on the PSOC was 43 prior to beginning intervention. After intervention, Joaquín's score increased to 50, indicating that he felt more competent as a parent after the intervention ended.

**Table 7.**

*Caregiver Scores on Parenting Sense of Competence Scale*

Question	Joaquín		Juliana		Eva	
	Pre	Post	Pre	Post	Pre	Post
1. It is difficult, but I have learned how to influence my children	3	5	4	5	4	6
2. Regarding my children, I go to bed exactly as I wake up, with the feeling that I have not accomplished anything*	2	1	4	3	4	1
3. I don't know why, but even though, as a parent, I believe that I have control of the situation, sometimes I feel like the situation controls me*	3	2	5	4	4	1
4. I would be able to tell a new parent exactly what they have to do to do to be a good parent.	4	3	1	1	4	5
5. As a parent, sometimes I feel like I can't keep up.*	4	3	6	5	4	4
6. I have managed to be as good a parent as I wanted.	3	4	4	4	4	5
7. If there is someone who knows what is going on with my child when there is something wrong with them, it would be me.	5	6	4	5	6	6
8. Considering how long I've been a parent, I handle these things very well.	4	5	3	4	6	5
9. I think I am capable of seeing all the things it takes to be a good parent.	6	6	2	4	4	5
10. Being a parent makes me nervous and anxious*	1	1	5	4	4	2
Total	43	50	26	35	40	52

\* = reverse coded item

***Juliana***

Juliana's initial score on the PSOC was 26 prior to beginning intervention. After intervention, Juliana's score increased to 35, indicating that she felt more competent as a parent after the intervention ended.

***Eva***

Eva's initial score on the PSOC was 40 prior to beginning intervention. After intervention, Eva's score was 52, indicating that she felt more competent after the intervention ended.

**Social Validity**

Two types of social validity were collected: An 8-item questionnaire was sent to the caregivers via REDCap, followed by a short interview with the researcher. Each interview lasted approximately 5-10 minutes. Joaquín's social validity data was gathered in English, while Juliana and Eva's were gathered in Spanish. This study reported high social validity among all three caregivers. Data are reported in Table 8.

***Joaquín***

Joaquín reported that he "completely agreed" (5) that the intervention and the parent support groups (5) were sensitive to his culture, as well as the beliefs and values of his family. He reported that he completed "completely agreed" (5) that he has continued to use the taught strategies. Joaquín also reported that he "completely agreed" (5) when asked if he obtained valuable information from these support groups and "completely agreed" (5) that they added value to the study as a whole. Finally, Joaquín reported in his survey that he felt this intervention was "extremely valuable" (5).

During his social validity interview, Joaquín indicated that the most important thing about this study is that it "puts the emphasis on the child". Joaquín stated that he was "very happy" with the direction of Mateo's progress as a result of the intervention, primarily because the coaching highlighted interactions being child-centered, rather than adult-driven. While he also stated that this intervention "would be useful for any culture", he followed this up with, "I think

it was successful, in large part, because you [the coach] are Latino...and that you have background knowledge about the way our culture is conducted”. Joaquín stated that the intervention could have been improved if services were delivered in person, “but it really limits the scope” of who would be able to participate, including Joaquín himself. Finally, Joaquín stated that this intervention addressed some of his concerns and hesitations regarding ABA.

Joaquín stated:

*You know, I think that this could be very beneficial, moving forward for other kids - for everyone. But, I just think that, like, a lot of the things that other parents voiced about ABA is a lot of things I've heard myself. I'm very happy with the direction that things are going as far as this goes.*

**Table 8.**

*Social Validity Responses*

Item	Joaquín	Juliana	Eva
1. This intervention was sensitive to my culture and the beliefs and values of my family.	5	5	5
2. I have continued to use the strategies that I learned through this coaching intervention	5	4	5
3. The parent support groups were sensitive to my culture and the beliefs and values of my family.	5	5	5
4. I obtained valuable information from the parent support groups	5	4	5
5. The parent support groups added value to the study as a whole	5	5	5
6. Please rate your experience in participating in this study	5	5	5
<p><i>1 = Not valuable 2 = Not very valuable 3 = Neutral 4 = Somewhat valuable 5 = Extremely valuable</i></p>			
7. Other Comments:	Adriana did a great job and I feel that this study has been very beneficial.	Thank you, Adriana, for giving me the opportunity to learn from you, for having the availability to give this training in my language, Spanish. It has been a great learning experience for me and I know it will be for [Nico] as we practice the strategies you showed us. Very grateful.*	Adriana, what a divine person you are, we have learned a lot from our meetings and you have treated us with a unique affection, [David] will miss you very much and so will I. As I told you before, you changed my opinion about ABA.*

*Note.* \* indicates translation to English

***Juliana***

Juliana reported that she “completely agreed” (5) with components of the intervention being sensitive to her culture. She reported that she “agreed” that she had continued to use the strategies and expanded on this in her interview by saying that she and Nico were sick for several weeks and therefore did not use the strategies every day. Yet, she rated her overall experience as “extremely valuable” (5).

In her social validity interview, Juliana said that she learned how to engage with Nico in a way that is dynamic and “that invites the child to participate” (“*que invite al niño a participar*”). She followed this with a note that, as a parent, one often tends to “give orders” (*dar ordenes*), but this study allows one to “get to know their child through their interests” (“*que conozca al niño a través de sus intereses*”). Juliana also mentioned that this study could have been improved if it were in person. When asked whether she felt that this intervention was catered to the needs of the Latino community, Juliana stated the following:

I know that here in Washington, for example, there are a lot of resources for parents. But not all of them have the availability to be in Spanish, so I think that you gave me the opportunity to speak in Spanish, to be able to talk with you, that you understood what the dynamics of all families are like, not only mine, but the other families. I think that gives us Latinos the opportunity, who are not completely fluent in the English language, to learn.

*Creo que te lo dije la vez anterior, cuando tuvimos el grupo de apoyo de que me he dado cuenta con los. Sé que aquí en Washington, por ejemplo, hay muchos recursos para padres. Pero no todos tienen la disponibilidad que sean en español. Entonces creo que el que tú hayas brindado la oportunidad de que fuese en español, de poder conversar*

*contigo, de que entendieras cómo es la dinámica de todas las familias, no solamente la mía, sino las demás familias. Creo que le da la oportunidad a que nosotros los latinos que no nos manejamos completamente en el idioma del inglés, podamos aprender.*

### **Eva**

Eva reported that she “completely agreed” (5) that the intervention and the parent support groups (5) were sensitive to his culture, as well as the beliefs and values of his family. She reported that she completed “completely agreed” (5) that she has continued to use the taught strategies. Eva also reported that she “completely agreed” (5) when asked if she obtained valuable information from these support groups and “completely agreed” (5) that they added value to the study as a whole. Finally, Eva reported in her survey that she felt this intervention was “extremely valuable” (5).

During her social validity interview, Eva reported learning how to “make the game more fun” (“*hacerlo más divertido*”) when playing with David. Prior to beginning, Eva reported, she “did not know how to play, how to start a game, how to be engaged in the game” (“*no sabía cómo jugar, cómo empezar un juego, cómo engancharme en el juego*”) and now felt like “another mother” (“*otra madre*”) after learning the strategies. Similar to Juliana and Joaquín, Eva reported that she wished for services to be in person and every day.

### **Interobserver Agreement (IOA)**

Interobserver agreement (IOA) was collected on the caregiver’s *NDBI-Fi* scores, as well as the child’s Spontaneous Communication, Response to Caregiver’s Communication, and Total Communication. IOA was collected across all phases for 100% of sessions. The IOA collected for the child Spontaneous Communication, Response to Caregiver Communication, and Total Communication ranged from 80 - 100%, with an average of 90.08%.

**Procedural Fidelity**

Procedural fidelity was collected for 100% of all intervention sessions. Procedural fidelity ranged from 90.9% (10 out of 11 fidelity items) to 100%. It should be noted, however, that steps missed in the fidelity were 1) Mateo asking to Joaquín to “turn teacher off”, as he had previous discomfort with remote learning through the pandemic, leading to some practice having little to no in-the-moment feedback and 2) David requesting to Eva that they keep playing, leading Eva to request if we could complete the reflection via email. Further details are provided in the discussion.

## Chapter 5: Discussion

This study utilized a culturally tailored family coaching model to teach basic language facilitation skills to caregivers of young children with autism. The *Familismo* Coaching Model (FCM) is a three-component model that integrates culturally sustaining practices and evidence-based approaches for working with children with autism and their families. Three Latino caregivers participated and learned four foundational strategies for interacting and engaging with their young children with autism. The results for the caregivers were measured using the Naturalistic Developmental Behavioral Intervention fidelity rating scale (*NDBI-Fi*; Frost et al., 2020). For each caregiver's child, their progress was measured through partial interval recording of their communication. Results suggest that this coaching model was very successful in helping caregivers improve their language facilitation skills. All three caregivers demonstrated high scores following intervention, increased their scores on the Parenting Sense of Competence Scale (Menéndez et al., 2011), and reported high social validity at the study's conclusion.

Previous research has shown that coaching is effective in increasing caregiver implementation of foundational skills (Dunlap et al., 2006; Sone et al., 2023). However, these studies are rarely adapted to meet the unique culturally needs of participants and disproportionately center white families as the majority (West et al., 2016). Research suggests that families have better intervention outcomes when there are cultural adaptations made (Smith et al., 2010) versus assuming that the intervention will be effective uniformly across multicultural families. The results of the current study suggest that the FCM was effective for teaching Latino caregivers essential components of NDBIs, as measured through the *NDBI-Fi* (Frost et al., 2020). Caregivers were taught to practice implementing the Core Four strategies (OTAI, undated) during play or daily routines with their young children. Through training,

coaching, and feedback, caregivers were taught about: Sharing Attention, Communication, Imitation, and Turn Taking. The Core Four strategies are an amalgamation of NDBI strategies, instructional strategies that stem from research and literature on child development and applied behavior analysis (Ingersoll & Schreibman, 2006; Koegel & Koegel, 2006; Rogers & Dawson, 2010; Schreibman et al., 2015). Participating in biweekly, virtual coaching for 10 sessions over five weeks, caregivers learned these four basic strategies for interacting or playing with their young child with autism. To increase saliency of the information and ease of implementation, caregivers received laminated handouts and were encouraged to place these in conspicuous places in their home. They were also encouraged to share the strategies with their families or partners to increase family involvement.

The caregivers who participated in this study all increased their ability to teach, engage, and follow their child's interest and reported that they were pleased with the content and process of the intervention. All caregivers finished the study with high *NDBI-Fi* scores that maintained at their two-week follow-up probe, indicating retention of taught strategies. Individual differences were observed in the children, which may have been influenced by their communication abilities at the start of the study. However, the immediacy of the caregivers' results indicates that the intervention strategies were easily adapted into each existing family dynamic. Additionally, two of the children who participated in this study increased their expressive and receptive communication as a result of the caregivers' teaching ability improving throughout the study. This intervention demonstrated high social validity with all three caregivers. Lastly, all caregivers reported an increase in their parental sense of competency at the end of the study.

### **Setting up for Success**

Joaquín, Juliana, and Eva learned strategies for effectively setting up their environment for success. Through this intervention, each caregiver learned the variables that lead to learning and engagement for them and their child. For example, during his initial coaching session, Joaquín was asked, “What makes Mateo laugh?” as the basis for brainstorming activities that would begin with his child’s motivation (Bradshaw et al., 2017). Joaquín mentioned that they often play a silly, sensory-based game before bedtime where he lifts Mateo up and down quickly, making him laugh. Joaquín said that he did not initially think of this activity as an opportunity for teaching communication, but later learned about the opportunities for requesting or turn taking. Thus, Joaquín learned that this “silly” game could hold promise for many teaching opportunities because Mateo was motivated to engage and was having fun. Throughout the coaching work and while reviewing the videos, Joaquín saw what activities made for successful routines. For example, a brand-new set of blocks was not as successful because Mateo was *too* motivated to explore them on his own and he resisted any attempts that Joaquín made to enter his play. However, when Joaquín offered other preferred activities, such as kickball or a doctor kit, he was more confident in embedding teaching opportunities such as imitation, requesting, answering questions, and turn taking. While playing with the doctor kit, Joaquín and Mateo took turns giving each other injections (or “poke shots”, as Mateo called them) and, because he was able to hold Mateo’s interest, he followed through with prompting and reinforcement consistently. While this flexibility in routines led to some being more successful than others, it is important to note that all intervention sessions were far above baseline levels, leading Joaquín to have the tools to set up successful play routines with his son.

Juliana learned how to follow her son’s interests as the basis for play routines (Bradshaw et al., 2017). For Nico, this involved a considerable amount of time on his swing or jumping

around the house. Juliana learned that using the swing to request “more” resulted in many new communication opportunities that Nico did not otherwise have. Following the highest intervention data point, Juliana attempted to increase her teaching rate too quickly, resulting in many unfinished teaching opportunities and thus a decrease in her scores. Juliana wanted to broaden his interests and attempted to bring in other toys to their play. However, upon reviewing the 10-minute recording during coaching, Juliana realized that this was resulting in too much adult-directed time; rather than focusing on Nico’s interests, she attempted to sit Nico down and take turns with a shape sorter. This caused frustration with her son (and herself), but she later saw the exact point where Nico lost interest in the game. More importantly, Juliana saw what factors lead to successful teaching and the importance of beginning with Nico’s motivation. For example, she learned that having too many toys out at once resulted in chaotic routines because there were too many options for Nico and that she needed to give Nico time to enjoy the activity/routine before attempting a teaching opportunity. Juliana learned to read Nico’s motivation levels, which was difficult because his motivation changed constantly. However, throughout the coaching work, Juliana learned how to adjust her rate of teaching according to Nico’s motivation.

While Juliana was targeting skills like “more” or “my turn” in play, Eva learned to target flexibility in play. Successful teaching appeared when she clearly proposed an idea to David and had him answer, rather than talking over her (which, Eva noted, was his way of saying that he did not agree). Her prompting and follow-through included saying, “David, did you hear what Mommy said? What do you think?” (“*¿David oíste lo que dijo mami? ¿Que piensas?*”). Juliana’s turn taking may have been a quick turn with a block in a shape sorter, but Eva’s turn taking was, “Okay David, you were the chef for a bit, but now I just got hired and that means *you’re* the

customer” (“*Ok David, fuiste el chef durante un tiempo, pero ahora me acaban de contratar y eso significa que tu eres el cliente*”). Thus, Eva’s problem-solving and creativity needed to come into play in order for the routine to be successful. Another example was Eva’s implementation of imitation. Joaquín would target imitation by modeling a silly action and get Mateo to laugh (e.g., a figurine on a fast rollercoaster), then very clearly say “now Mateo try” and follow through as necessary. Eva needed to embed imitation more creatively into the core theme of the play routine. For example, while playing “restaurant” with Play-Doh, Eva said, “Okay, we need to make the pizza dough, but I need my assistant to help me roll the dough *super-fast* because we have customers! Here, assistant!” (“*Ok, tenemos que hacer la masa de pizza, pero necesito que mi asistente me ayude a enrollar la masa súper rápido porque tenemos clientes. ¡Aquí, ayudante!*”) while modeling the action of rolling the dough. Thus, Eva learned how to teach in a way that was natural, contextualized in David’s chosen theme, and at David’s creativity level. If teaching was too direct or decontextualized, David became resistant or would give another idea in its place. On two occasions, David left the room during practice because Eva’s approach was too firm.

Through the video review, Eva was able to see what strategies lead to successful routines and learned the importance of having fun in play. During the example of the pizza dough, Eva was able to see that it was her energy that captured David’s attention. After David attempted to imitate, his Play-Doh flew out of his hands and they both laughed about this together. Anecdotally, Eva mentioned that David later recounted this moment to his father and sister, still amused by it. During coaching, Eva was asked questions such as “What do you think made this moment so successful?” to have Eva reflect on the strategies that she implemented, such as ensuring David’s motivation or having positive affect and animation. Eva later mentioned that,

had she not reviewed the video, her first answer would have simply been that “David was in a good mood” (“*Estaba de buen humor*”). Through the coaching, reflection, and video review, Eva could see what factors she did that lead to success.

### **Providing Opportunities to Respond**

All three caregivers learned valuable strategies for successful communication facilitation with their children. A common theme for all caregivers was the use of rhetorical questions or too many questions at once while interacting with their children during baseline. This caused many of their questions to be ignored or unanswered. For example, Joaquín would attempt to embed some teaching in their routines during baseline but did not often follow through with consequences or prompting and thus Mateo did not attend to much of what he said. Joaquín would say, “That’s a moon. What letter does moon start with? M-”. Although Mateo knew the answer and had the capacity to respond, he did not respond to the question and Joaquín did not wait or help Mateo answer the question. In some baseline sessions, Mateo would play independently while Joaquín narrated or asked rhetorical questions nearby. Mateo would occasionally engage, comment, or answer, but was largely engrossed in his own play.

As Joaquín learned to clearly state one question and wait for a response, Mateo’s rate of communication increased. Mateo did not necessarily gain any new words due to the intervention; rather, his *use* of contingent responding increased as Joaquín learned strategies in coaching. For example, Mateo knew how to say, “my turn”, but rarely said it. After coaching began, Joaquín would intentionally target “my turn” during and outside of session, resulting in Mateo receiving high amounts of reinforcement and opportunities to practice. Joaquín embedded this during into play routines by holding out items that he knew Mateo might request, such as a figurine or a block. When Mateo would reach to take the toy as he normally did, Joaquín would pause and

either model “my turn, Dad” or ask him, “what can you say?”. Anecdotally, Mateo’s mother emailed the coach to comment how “my turn” had over time become a natural part of his repertoire and they now noticed him using it at various times of the day. Behavior decreased on session 14; however, this was due to Mateo requesting to eat during video recording. While Mateo remained engaged and Joaquín still targeted the learned strategies, Mateo’s mouth was full for a portion of the routine. Yet, Mateo’s communication returned to the level observed during the majority of intervention during his follow-up probe.

Juliana had a similar pattern of communication with her son, Nico. While Juliana attempted to set up fun activities and stay on Nico’s level, their play was often incohesive. Nico preferred to jump and be active, while Juliana wanted him to sit and complete a shape sorter. When baseline sessions began, Juliana was not following his lead and instead began their interactions with adult-directed activities. Juliana’s language was also far beyond Nico’s current level. At the time of the study, Nico did not communicate with verbal language and instead used around 1-2 signs. Yet, Juliana attempted to gain Nico’s motivation by asking rhetorical questions in quick succession such as, “Look, what do I have here? Should we play with this? Look, what’s this?” (“*Mira, ¿qué tengo aquí? ¿Deberíamos jugar con esto? Mira, ¿qué es esto?*”). Juliana also did not yet know how to set up teaching or communication opportunities. While Nico did have the emerging capacity to use sign language to request “more”, it was only observed once over five baseline sessions. Upon receiving training and coaching, Juliana’s *NDBI-Fi* score immediately increased and peaked on the third intervention session. Juliana learned how to pause and wait for her child’s attempts to communicate and how to prompt before he grew frustrated or lost interest. During Session 8, Juliana embedded 11 successful communicative opportunities for Nico. She did this by following Nico’s interests and picking the appropriate time to target

communication. Juliana would swing Nico on his swing, then pause and wait expectantly for him to request for “more”, as well as pausing and clearly asking, “do you want more?” (“¿quieres mas?”). Through this intervention study, Juliana learned to teach Nico new words in sign language. Juliana began modeling “swing” (*columpio*), “all done”, and “my turn” (*mi turno*) in a mixture of Spanish and English.

### **Cultural Fit**

All caregivers commented about their satisfaction with the coaching model and its cultural and linguistic fit (Domenech Rodríguez et al., 2011). During coaching sessions and during her follow-up, Juliana mentioned that she was not the only one working with Nico and using the taught strategies. In alignment with the *Familismo* Coaching Model’s Core Latino Values (Bernal et al., 1995; Buzhardt et al., 2016), Juliana also included her husband in the learning. Initially, Juliana wanted her husband to join the coaching sessions, but he was typically at work outside of the house while Juliana was available to meet. Yet, Juliana was encouraged to share all that she learned with her husband. During each session’s check-in time, the coach would ask Juliana how, or if, the family practiced the skills. Throughout the study, Juliana suffered from some health issues, but said that she would learn just as much from teaching and watching her husband embed the skills with Nico. She also mentioned that the strategies were easy enough that she could then teach her husband as he learned from the handouts at home. Thus, the family-centered nature of the coaching and ease of the strategies helped both Juliana and her husband, ultimately serving in Nico’s benefit. Further, Juliana shared that she was grateful to have the opportunity to have this intervention in Spanish.

Eva shared similar sentiments during her coaching and social validity interview. On several occasions, Eva mentioned that the entire family was implementing the Core Four skills

and adjusting their interactions for David's benefit. For example, David's older sister and father started using turn taking during play, rather than only watching David play. In her social validity interview, Eva stated,

I'm showing it to my husband too. And when my daughter plays with [David], I also tell [her] should say such-and-such things to try to get him hooked. I mean, I'm like passing the data to my family. For what? So they can see how, how to play better, how to get him engaged in the game.

*Le estoy enseñando a mi esposo también. Y cuando mi hija juega con él, también le digo a [hija] conviene decir tal cosa para tratar de que él se enganche. ¿O sea, estoy como pasando los datos a mi familia para que? Para que vean cómo, cómo jugar mejor, como engancharse mejor al juego.*

Joaquín showed how this intervention was adaptable to his own family's micro-culture, which differed from the Latino culture at large. During coaching, Joaquín discussed how he disagreed with the Latino culture's view of *machismo*, or the belief that men and boys need to be hyper-masculine (Basham, 1976) and stated that he and his wife did not want to raise their three sons that way. In the literature, *machismo* has been demonstrated to be a factor that precludes many Latino children from receiving autism-specific services (i.e., pursuing an autism diagnosis or intervention following a diagnosis), as many Latino men see a child with a disability as a poor reflection upon themselves as men (Guerrero & Sobotka, 2022; Zuckerman et al., 2014).

Joaquín, however, was determined to disassociate himself and his family from this view and instead approach autism, disability, and caregiver coaching from a more empathetic standpoint. Joaquín wanted to encourage Mateo to express his feelings and have an appropriate outlet when frustration, sadness, or anger arose. On multiple occasions, Joaquín narrated, "I know. You're

feeling frustrated. It's okay to feel that way. We can play something different". Through this coaching, Joaquín was encouraged to embed the skills in a way that felt appropriate for his son and himself.

### **Components of the *Familismo* Coaching Model (FCM)**

The purpose of the FCM was to create a family coaching model that was specifically tailored to the needs and characteristics of the Latino community. A family's cultural background has been shown to influence the family's involvement and how they approach services for their child (Mitter et al., 2019). For example, there is a heavy stigma regarding disability and needing specialty services within the Latino community (Blanche et al., 2015; Cohen & Miguel, 2018; DuBay et al. 2018; Zuckerman et al., 2018) and, as noted above, this often precludes a family's decision to seek out support (Zuckerman et al., 2014). This is critical for professionals to understand in order to approach a therapeutic relationship in a culturally responsive manner, particularly if hesitancy or sentiments of resistance to services are noted.

The concept of *familismo* (Calzada et al., 2013) was carried throughout the entirety of the intervention. Examples include communication with both Joaquín and his wife (e.g., the feedback and agenda notes were emailed to them both, as his wife also wanted to learn), as well as Juliana and Eva both being encouraged to share the teachings with their husbands. This area overlaps with Family-Centered Practice (Tomasello et al., 2010) in that the entire family is seen as the unit of attention, not simply the primary caregiver. This method has been shown to enhance family skills, self-efficacy, and competence which in turn leads to enhanced child outcomes (Meadan et al., 2016; Rush & Sheldon, 2011). However, more than simply involving the entire family was the intentional centering of the *Latino* family – this included discussion around Latino customs, traditions, immigration stories, and countries of origin. The coach and

Eva would sometimes compare and discuss the traditions of Mexico and Uruguay, such as using different words in Spanish for the same object. Another example included the coach and Joaquín discussing growing up Mexican-American in the United States. These moments of background-sharing added to the *personalismo* and *confianza* (trust) to the coaching that was contextualized within a Latino culture. *Personalismo* refers to the value of genuine relationships with others (Cauce & Domenech-Rodriguez, 2002), specifically in the exchange of small talk to build trust in others (Davis et al., 2019). Further, the coaching was done in the family's preferred language by a professional of their own culture, with the families being able to choose what language they would prefer their communication, materials, and feedback in. Many Spanish-speaking families report that inadequate language services are one of the leading barriers to adequate care (Keengwe, 2010; Skiba et al., 2006), leading to misunderstanding in communication and overall reduced quality of care (Flores et al., 2000), often forcing the family to adopt English as their home language and forgoing their native language (Kay-Raining Bird et al., 2012). Juliana mentioned that having the opportunity to converse and learn in her native language was one of the most important aspects of this study. Eva shared similar sentiments. She was more comfortable in Spanish, but David was bilingual and the coach would switch back and forth during coaching sessions.

The choice to measure progress through the *NDBI-Fi* (Frost et al., 2021) added to the flexibility of the intervention. Rather than measure the implementation of skills with a frequency measure or partial interval recording, this was measured flexibly in a way that honored what felt most natural to each caregiver. For example, targeting imitation 3 times per 10-minute video session might feel low to one dyad, but be a great achievement for another dyad. Additionally, the caregivers were encouraged to think about what skills came up naturally in the moment,

rather than focusing on implementing the skills as much as possible. For Nico, he learned to say, “my turn” and “more” using sign language consistently throughout this study. Mateo also began using “my turn” or “Mateo’s turn” as a result of the caregiver’s teaching. Thus, while the caregivers learned all Core Four strategies, they were given the necessary tools and empowered to choose which strategy would be more appropriate for the moment (Bierman et al., 2017).

It was also important that the caregivers experienced joy throughout their interactions with their children. Research shows that caregivers of children with autism feel higher levels of stress than caregivers of children without autism (Estes et al., 2009) and that Latino caregivers experience even higher amounts of challenges and stress (Bishop-Fitzpatrick & Kind, 2017; Zuckerman et al., 2017). Yet, feelings of harmony and love (*amor*) within the family unit are repeatedly shown to be a critical value for Latino culture (Cohen & Miguel, 2018; Domenech Rodríguez et al., 2011). This was confirmed through all three dyads saying that they wanted their child to enjoy themselves in play or that the caregivers themselves wanted to enjoy the time spent with their child. This was captured by the *NDBI-Fi* in “Positive affect and animation”. During coaching sessions, the coach would ask probing questions such as “how did this play routine feel to you?” to have the caregiver reflect on their affect. For example, Juliana said on several occasions, “I felt stressed and frustrated. I think you could see it on my face. He just wouldn’t sit still” (“*Me sentí estresada y frustrada y creo que podrías verlo en mi cara. No se quedaba quieto*”). This framed a natural opportunity for the caregivers to observe what actions lead to the disruption in harmony between them and their child, creating a discussion on what strategies created successful play interactions.

### **Implications for Practice**

The current study demonstrated the effectiveness of a multi-component, culturally tailored caregiver coaching intervention. This coaching model was specifically designed to highlight, uphold, and center the values of the Latino community. Further, this intervention used foundational principles in applied behavior analysis and family-centered practice to create a flexible family coaching model that was efficient, easy to learn, and could be applied across many daily routines, activities, and learning styles. As autism rates continue to rise, many children are left on waitlists for intervention that experts have told them is essential (Kanne & Bishop, 2021). Meanwhile, these caregivers could be learning important strategies to not only know how to embed teaching with their child, but also find joy in their interactions. This is especially important for caregivers of young children with autism, as they experience higher amounts of negative emotions such as depression and anxiety (Estes et al., 2019).

This was a short-term, yet effective intervention that gave caregivers concrete tools (with materials such as the handouts and notes of every session) that will last beyond the duration of this study. This carries potential for replication with other Latino caregivers of young children with autism. Research indicates that the Latino community reports reduced access to information, high amounts of stigma associated with autism, and more negative interactions with professionals when compared to white families (Casillas et al., 2018; Rivera-Figueroa et al., 2022), yet very few interventions are culturally tailored, bilingual, and even less research centers the values and beliefs of the Latino population. Practitioners can emphasize the positive outcomes that result from an intervention delivered in the participant's preferred or native language by someone of their cultural background (Magaña et al., 2017) and utilize the FCM to teach simple strategies that can extend to the entire family.

An important implication of this study was the changed attitudes and beliefs that two of the caregivers (Joaquín and Eva) shared about ABA and autism-specific intervention. Sentiments toward ABA have become critical, with some autistic advocates stating that the services are not appropriate for young children (Anderson, 2023). Eva and Joaquín had both encountered negative attention toward ABA on social media and were hesitant to enter a research study using behavior analytic principles. Yet, both were satisfied to discover that the approach was family-friendly and child-centered (Schreibman et al., 2015). All three caregivers stated wanting more of the current service model, with Eva saying she wishes she could have daily services for David. This carries potential in assisting families ease into behavior analytic services, as it aligns with their family values, particularly if they are hesitant to commit to any service provision. A short-term, cost-effective, and low-commitment caregiver coaching intervention has potential for future replication across behavior analytic or early intervention agencies serving this population.

### **Limitations and Areas for Future Research**

These results suggest several potentials for future research and limitations that would strengthen this model. One interesting outcome is that only two of the three participating children demonstrated communicative gains from the caregiver intervention. This intervention was designed for early communicators. Although David's caregiver wanted to participate in the study and reported being very satisfied with the outcomes of the study, including wishing these services were available daily, she also reported that David did not demonstrate language delays. Although the pragmatic nature of their interactions improved, the system used to measure child language was not sensitive to these changes. Future research should look at using the FCM with a wide range of communicators. While child communication was not a primary dependent variable in this study, it would be important for future replications to 1) tailor the dependent

variables to the needs of the child and 2) through pre-assessment measures, ensure that enrolling children would benefit from the NDBI model intended for newly emerging communicators. The success of FCM with these families also suggests that it may be an effective coaching model for families with older children and those focusing on behavior other than communication skills.

Future research may also look at the effects and social validity of the FCM when done in person, as in-person connections may adequately meet the needs of the Latino population (DuBay et al., 2018). While the remote nature was a noted limitation prior to beginning the study and was noted by Joaquín and Juliana in their social validity interviews, Joaquín also mentioned that in-person services would have also precluded him from participating, given their family's remote location. Indeed, there is a high percentage of Latinos that live in rural areas (Passel & Cohn, 2009), which makes it difficult to find the appropriate services for their children.

Literature highlights the importance of personal connections within the Latino community (Cauce & Domenech-Rodriguez, 2002). Thus, coaching and personal connections may have been limited when done remotely. Future research may build upon the present study by conducting coaching in the homes of the caregivers.

Current calls are made for more Latino representation within the behavior analytic literature and in practice (Rivera-Figueroa et al., 2022). Although the lead researcher was a member of the Latino community, this study could have been strengthened from more direct input from Latino caregivers directly, through the use of surveys, interviews, or focus groups, such as the qualitative interviews conducted by Casillas et al. (2018). This has been suggested by other researchers (McCabe et al., 2005; Buzhardt et al., 2016), but was beyond the scope of the current study. Future research may look at the Latino community's perspectives, feedback, or suggestions for improvement of the *Familismo* Coaching Model.

## **Conclusion**

The current study examined the effectiveness of a culturally tailored family coaching model for Latino caregivers. The *Familismo* Coaching Model (FCM) extends the literature by assessing the effectiveness of a behavior analytic and family-centered coaching model systematically tailored to the needs of the Latino community. Results demonstrate that this intervention was effective at improving the caregivers' use of NDBI strategies. This study was also effective at delivering the services remotely, which holds promise for families on waiting lists to receive services for their child with autism. Importantly, this intervention showed high social validity for all three caregivers, who were able to effectively implement the strategies with their children and also pass their knowledge onto other members of their family. At the center of this coaching model, the family unit is highlighted, and the values, beliefs, and customs of the Latino community are explicitly upheld, further celebrating the core component of *familismo*.

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**Appendix A**

## Pre-Screening Survey\*

**Question 1:** Are you above 18 years old?

**Question 2:** Do you identify as Latino/a/Latinx/Hispanic?

**Question 3:** What is your primary language?

**Question 4:** Are you the caregiver/guardian of a child under the age of 8 with autism or who is at risk of having autism?

**Question 5:** Have you or are you currently receiving coaching from a BCBA?

**Question 6:** Is your child currently enrolled in Applied Behavior Analysis (ABA)?

**Question 7:** You will be participating in an eight-week caregiver coaching intervention. The purpose of this study is to teach caregivers of children with autism specific techniques to interact with their children. At the end of the study, you will be given a \$200 gift card for your time. Would you like to proceed?

*If the caregiver responds “yes” to questions 5 or 6, the lead researcher will follow up with individual to confirm.*

\*Translated into English

**Appendix B**

## Demographic Survey\*

*Please answer the following questions about yourself. This information will be used for study purposes only.*

1. What is the gender that you identify with?
  - a. Female
  - b. Male
  - c. Gender neutral
  - d. Non-binary
  - e. Other
2. What is your highest educational level?
  - a. Elementary school
  - b. High school
  - c. Some college
  - d. 4-year university
  - e. Master's
  - f. Doctorate (PhD)
  - g. Medical degree (MD)
  - h. Other: (please list)
3. What is your primary language?
4. What is your current occupation?
5. How would you describe your race or ethnicity?

*The following questions pertain to your child.*

1. What is your child's current age?
2. What was your child's age at diagnosis?
3. What is your child's gender?
  - a. Female
  - b. Male
  - c. Gender neutral
  - d. Non-binary
  - e. Other
4. What type of services has your child received in the past?
  - a. Special Education
  - b. Early Intervention
  - c. Speech & Language Pathology
  - d. Applied Behavior Analysis (ABA)
  - e. Occupational Therapy
  - f. Other: (please list)
5. What type of services is your child currently receiving?
  - a. Special Education
  - b. Early Intervention
  - c. Speech & Language Pathology
  - d. Applied Behavior Analysis (ABA)
  - e. Occupational Therapy
  - f. Other: (please list)
6. How would you describe your child's race or ethnicity?
7. What is your child's primary language?

\*Translated into English

## Appendix C

### Core Four Caregiver Coaching Handout

# 'Core 4' Strategies

#### Always Remember...

- Sit close to and facing your child (put materials in the middle)
- Follow your child's interests and describe what they're doing
- Use simple language – the “one up” rule
- Focus on FUN!

#### **1) Sharing Attention**

- Be a helpful partner
- Establish an enjoyable routine
- After a few times, pause with anticipation and look for the shared attention before continuing

#### **2) Communication**

- Give a little for free (blow the bubbles, sing a line from the song, etc.)
- Pause and model the word
- Wait until they say or attempt the word
- Give the item and praise!
- Try again after your child has had a bit of time to enjoy the toy/item/activity

#### **3) Imitation**

- Follow your child's movements around the room
- Imitate your child's actions (intentional and unintentional), words, and sounds
- Model a new action every 1-2 minutes - be silly!
- Wait 10 seconds before modeling again (up to 3 times)
- Help your child imitate you
- Return to imitating your child

#### **4) Turn Taking**

- Establish an enjoyable routine
- Take a quick turn with the toy, do something interesting or silly (make sure they see)
- Return the toy
- Continue to take turns back and forth for as long as your child seems interested in the activity

Appendix D

NDBI-Fi Rating Anchors

NDBI-Fi Common Items Rating Anchors

Direct Teaching

Frequency of direct teaching episodes 🕒					
<p>The adult directs the child to demonstrate new or emerging skills by giving some kind of instruction or cue. There is at least a brief period of time between direct teaching episodes in which the child receives access to a reinforcer, and the adult leaves space for child initiations. The adult can introduce more frequent direct teaching episodes for children who are highly motivated than for children who are not engaged.</p> <ul style="list-style-type: none"> <li>Only count complete direct teaching episodes here (i.e. those with all of the following: A) Instruction, B) Child response/behavior, C) Adult response or reinforcement). These do not have to be of good quality (rated in subsequent item).</li> </ul>					
1	2	3	4	5	N/A
The adult does not complete any direct teaching episodes to teach skills.	The adult completes direct teaching episodes 1-2 times in 10 minutes.	The adult completes direct teaching episodes 3-4 times in 10 minutes.	The adult completes direct teaching episodes 5-10 times in 10 minutes.	The adult completes direct teaching episodes more than 10 times in 10 minutes.	
Quality of direct teaching episodes 🎯					
<p>The adult uses high quality teaching strategies throughout direct teaching episodes. Quality indicators include:</p> <ul style="list-style-type: none"> <li>Clear: When giving an instruction or prompt, the adult uses communication that is clear and developmentally-appropriate, such that it is clear how the child is expected to respond. Instructions and prompts are simple and direct, and the target skill remains consistent within each direct teaching opportunity.</li> <li>Developmentally appropriate target: DTOs target behaviors that are at or just above the child's current skill level.</li> <li>Motivating and relevant: The adult teaches skills when the child is motivated, interested, and engaged in the activity. The child's interest may be indicated by reaching for materials, approaching the adult, making eye contact with the adult, looking at the materials, etc. The target behavior is logically related to the ongoing activity, and the adult embeds the teaching opportunity in the context of the ongoing activity.</li> <li>Supporting a Correct Response: After initiating a direct teaching opportunity, if the child does not respond independently (but remains interested), the adult attempts to help the child respond correctly. This includes repeating the instruction, giving the child additional cues to respond, scaffolding the child's learning, or physically helping the child follow through. Over time (across several teaching episodes), the adult decreases support as a child learns a new skill.</li> <li>Providing contingent natural and social reinforcement: Once a provides a correct response (including when supported by the adult), the adult provides an immediate (i.e. within a few seconds) natural reward that is directly related to the child's response, and/or positive social reinforcement such as touching, verbal praise, or positive affect. Reasonable attempts to respond correctly, such as word approximations, are rewarded when developmentally-appropriate. Children are not allowed access to reinforcement without providing some type of response.</li> </ul>					
1	2	3	4	5	N/A
All direct teaching episodes are of low quality (2 or fewer indicators). There are no high quality episodes.	2 quality indicators are consistently used across direct teaching episodes. At least one high quality episode is present.	3 quality indicators are consistently used across direct teaching episodes OR about half of episodes are poor quality (2 or fewer indicators).	4 quality indicators are present within most direct teaching episodes. Few (if any) episodes are poor quality (2 or fewer indicators).	5 quality indicators are present within nearly all direct teaching episodes. There are no poor quality episodes (2 or fewer indicators).	Adult received a score of 1 on item 15: Pace and Frequency of Direct Teaching

**Direct Teaching**

**Frequency of direct teaching episodes** ①

The adult directs the child to demonstrate new or emerging skills by giving some kind of instruction or cue. There is at least a brief period of time between direct teaching episodes in which the child receives access to a reinforcer, and the adult leaves space for child initiations. The adult can introduce more frequent direct teaching episodes for children who are highly motivated than for children who are not engaged.

- Only count complete direct teaching episodes here (i.e. those with all of the following: A) Instruction, B) Child response/behavior, C) Adult response or reinforcement). These do not have to be of good quality (rated in subsequent item).

1	The adult does not complete any direct teaching episodes to teach skills.	2	The adult completes direct teaching episodes 1-2 times in 10 minutes.	3	The adult completes direct teaching episodes 3-4 times in 10 minutes.	4	The adult completes direct teaching episodes 5-10 times in 10 minutes.	5	The adult completes direct teaching episodes more than 10 times in 10 minutes.	N/A
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**Quality of direct teaching episodes** ②

The adult uses high quality teaching strategies throughout direct teaching episodes. Quality indicators include:

- Clear:** When giving an instruction or prompt, the adult uses communication that is clear and developmentally-appropriate, such that it is clear how the child is expected to respond. Instructions and prompts are simple and direct, and the target skill remains consistent within each direct teaching opportunity.
- Developmentally appropriate target: DTOs target behaviors that are at or just above the child's current skill level.
- Motivating and relevant: The adult teaches skills when the child is motivated, interested, and engaged in the activity. The child's interest may be indicated by reaching for materials, approaching the adult, making eye contact with the adult, looking at the materials, etc. The target behavior is logically related to the ongoing activity, and the adult embeds the teaching opportunity in the context of the ongoing activity.
- Supporting a Correct Response: After initiating a direct teaching opportunity, if the child does not respond independently (but remains interested), the adult attempts to help the child respond correctly. This includes repeating the instruction, giving the child additional cues to respond, scaffolding the child's learning, or physically helping the child follow through. Over time (across several teaching episodes), the adult decreases support as a child learns a new skill.
- Providing contingent natural and social reinforcement: Once a provides a correct response (including when supported by the adult), the adult provides an immediate (i.e. within a few seconds) natural reward that is directly related to the child's response, and/or positive social reinforcement such as touching, verbal praise, or positive affect. Reasonable attempts to respond correctly, such as word approximations, are rewarded when developmentally-appropriate. Children are not allowed access to reinforcement without providing some type of response.

1	All direct teaching episodes are of low quality (2 or fewer indicators). There are no high quality episodes.	2	2 quality indicators are consistently used across direct teaching episodes. At least one high quality episode is present.	3	3 quality indicators are consistently used across direct teaching episodes OR about half of episodes are poor quality (2 or fewer indicators).	4	4 quality indicators are present within most direct teaching episodes. Few (if any) episodes are poor quality (2 or fewer indicators).	5	5 quality indicators are present within nearly all direct teaching episodes. There are no poor quality episodes (2 or fewer indicators).	N/A
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### Appendix E

#### NDBI-Fi Data Sheet

NDBI-Fi Score Sheet

Tallies/notes:	
Good	Poor/missed

First Pass  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

- Item  
Face-to-face and on the child's level ☺
- Following the child's lead ☺
- Positive affect and animation ☺
- Modeling appropriate language ☺
- Responding to attempts to communicate ☺
- Using communicative temptations ☺
- Pace and frequency of direct teaching opportunities ☺
- Quality of direct teaching opportunities ☺

<u>Item</u>	<u>Final Scores</u>
	/ 5
	/ 5
	/ 5
	/ 5
	/ 5 or NA
	/ 5
	/ 5
	/ 5 or NA

Video Name: \_\_\_\_\_  
 Video Duration: \_\_\_\_\_  
 Alert/Quality Note: \_\_\_\_\_

Audio Quality (circle one): \_\_\_\_\_

- Visual Quality (circle one):
- 1 2 3 4 5
  - 1 2 3 4 5
- 1 = Quality significantly impaired rater's ability to score items  
 3 = Quality somewhat impaired rater's ability to score items  
 5 = Quality did not at all impair rater's ability to score items

Sum above: \_\_\_\_\_

_____ (points earned)	_____ (points possible)
-----------------------	-------------------------

Average Rating:

$$\frac{\text{points earned}}{\text{points possible}} \times 5 =$$

NDBI-Fi Note Taking Form

Child ID:

Video:

Rater Name:

Date:

Time:	Notes:

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

DTO:

Target:

A  B  C

Clear?

Devel. appropriate?

Motivating and relevant?

Support correct response?

Quality reinforcement?

Appendix F

Child Data Sheet

Caregiver-Child Dyad: \_\_\_\_\_  
 Video #: \_\_\_\_\_

Directions: For each interval, circle the child behavior that occurred. If a behavior did not occur, put a ~~strike~~ through for that interval.

Minute	Interval 1 (sec_ :00 - _ :09)	Interval 2 (sec_ :10 - _ :19)	Interval 3 (sec_ :20 - _ :29)	Interval 4 (sec_ :30 - _ :39)	Interval 5 (sec_ :40 - _ :49)	Interval 6 (sec_ :50 - _ :59)
Minute 1 0:00 – 0:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 2 1:00 – 1:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 3 2:00 – 2:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 4 3:00 – 3:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 5 4:00 – 4:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 6 5:00 – 5:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 7 6:00 – 6:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 8 7:00 – 7:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 9 8:00 – 8:59	SC R	SC R	SC R	SC R	SC R	SC R
Minute 10 9:00 – 9:59	SC R	SC R	SC R	SC R	SC R	SC R

SC = Spontaneous Communication  
 R = Responds to caregiver communicative temptation

<b>Child Spontaneous Communication</b>	Any form of communicative attempt in the form of labeling, commenting, or requesting using either their body (e.g., point, nodding, sign language, etc.), voice, or through augmentative and alternative communication (AAC) devices. <b>Examples:</b> point to toy across the room; approximates “more” sign by clapping; says “vroom” while playing with a car; says “in” while putting in a puzzle piece; commenting on parent narrating/actions. <b>Non-Examples:</b> Child babbles to themselves; Child points after a caregiver holds up an item; smiling and eye contact; echolalia
<b>Child Response to Adult Communication</b>	After the caregiver intentionally targets communication (e.g., asking “what do you want to do?”, mom stops the swing and prompts, “m--” for “more”, asking “what’s next?”), the child responds independently or with minimal prompting. <b>Examples:</b> Child points to item that parent asked about; Child nods when adult asks, “do you want the car?”; partial physical prompted response; response after a model; answering questions; reaches to choose (after caregiver initiates). <b>Non-Examples:</b> No response; responds incorrectly; full physical prompted responses; requests spontaneously; smiling and eye contact; reaches to take toys; following directions; echolalia

## Appendix G

### Social Validity Measures\*

#### *Social Validity Questionnaire*

1. The coaching was sensitive to my culture and my family's beliefs and values.
  2. I have continued to use the strategies I have learned through this coaching intervention.
  3. The intervention provided me with the information to interact more effectively with my child.
  4. The support groups were sensitive to my culture and my family's beliefs and values.
  5. I gained valuable information from the support groups.
  6. The support groups added value to the entire study.
  7. Rate your overall experience participating in this study.
  8. Other comments:
- 

#### *Social Validity Interview*

1. Did you find participation in this study to be helpful and useful? Please describe why or why not.
2. Do you think that you will continue to use the strategies you learned after this study is done?
3. If you to describe this study to someone else, tell me what you would say.
4. The purpose of this study was to design a coaching intervention for Latino families. Do you feel that this study was able to do that? Why or why not?
5. How could this study have been improved?
6. Is there anything else you would like to tell me?

\*Translated into English

**Appendix H***Familismo* Coaching Model (FCM) Implementation Fidelity

**Dyad Initials:** \_\_\_\_\_ **Session #:** \_\_\_\_\_ **Date of rating:** \_\_\_\_\_

**Instructions:** Place a checkmark under “Yes”, “No”, or “N/A” if behavior was completed or not completed.

<b>FCM IMPLEMENTATION FIDELITY CHECKLIST</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>
<p><b>1. Checking in:</b> The coach spends between 5-15 minutes checking in with the entire family or whoever is present in the home. This does not have to be related to the coaching topics unless the caregiver brings it up. This should be informal.</p>			
<p><b>2. Review the agenda:</b> Once it is time to begin, the coach pulls out the printed agenda and begins to review it, giving an overview of the session.</p>			
<p><b>3. Reflect on previous week (if applicable)</b> The coach then begins to ask the caregiver how the previous week went, listening intently and writing notes. The coach troubleshoots with the caregiver as necessary.</p>			
<p><b>4. Review the Core 4 Skills</b> The coach then gives an overview of the Core 4 skills. If it is Intervention Session 1, this part can take 15-30 minutes. If the parent has been familiarized with the Core 4 skills, it can be shorter.</p>			
<p><b>5. Model target behavior with self, caregiver, or child if possible</b> The coach spends time modeling each skill or show how they can be combined (i.e., Sharing Attention and Communication can be targeted simultaneously). If possible, the coach spends up to 15 minutes modeling with the child.</p>			
<p><b>6. Answer questions by caregiver</b> This can be done throughout the coaching session or the coach asks the caregiver if they have any questions before practicing.</p>			
<p><b>7. Caregiver practices Core 4 skills with the child</b> The coach has the caregiver practice implementing the Core 4 skills while playing or interacting with their child.</p>			
<p><b>8. Give positive feedback</b> The coach provides encouraging, positive feedback to the caregiver. The coach highlights the areas that were done well and gives explanations as needed.</p>			
<p><b>9. Begin recording</b> The coach asks the caregiver if they are ready to begin recording. The coach steps to an unobtrusive place in the room and begins recording the interaction.</p>			
<p><b>10. Reflect and review</b> The coach ends the recording and spends time with the caregiver reflecting on the interaction. The coach is positive, supportive, and highlights the areas that were done well. The coach specifies which Core 4 strategies were implemented.</p>			
<p><b>11. Steps for next coaching session</b> The coach gives the caregiver specific steps to work on throughout the week, ensuring to frame these steps in a supportive manner and highlighting the caregiver’s strengths. For example, if the caregiver is responsive to the child’s communicative attempts, the coach will highlight this and note on the agenda.</p>			

**Appendix I***Familismo* Coaching Model (FCM) Agenda\***Participant:****Date:****Time:****Session Number:**

<b>A. Greeting/Check in</b> <i>(5-15 minutes)</i>	
<b>B. Opening Questions</b> <i>(15 minutes)</i>	<i>How did you practice the skills?</i>  <i>Is there anything that is feeling difficult?</i>  <i>Is there anything that felt better/easier than last time?</i>
<b>C. Instruction and Practice</b> <i>(10-15 minutes)</i>	<ol style="list-style-type: none"> <li>1. <i>Definition</i></li> <li>2. <i>Model /Rehearsal</i></li> <li>3. <i>Feedback</i></li> <li>4. <i>Questions</i></li> </ol>
<b>D. Recording</b> <i>(10 minutes)</i>	Notes:
<b>E. Closing Questions/Debrief</b> <i>(10 minutes)</i>	<i>What went well?</i>  <i>What was difficult?</i>  <i>Practice:</i>  <i>Next session date:</i>

\*Translated into English