

Enhancing playful interactions: eCoaching mothers of preschool children with disabilities

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Abstract: Pretend play is crucial for developing communication and cognitive skills in preschool children. Targeted coaching during pretend play can effectively support family-centered practices and home-based assistance. This study employed a detailed collective case study to explore how eCoaching can aid family-centered practices during at-home pretend play for children with speech-language and developmental delays. Two mother-child pairs, each involving a preschool child with an Individual Education Plan (IEP), participated in at-home eCoaching sessions while engaging in pretend play. Implementing eCoaching helped mothers acquire play-based knowledge and better facilitate pretend play tailored to their child's developmental needs. Throughout the eCoaching process, improvements were noted in the children's quality of pretend play and language behaviors. After the eCoaching sessions concluded, both mothers and children experienced benefits from the process. The mothers had positive perceptions of their eCoaching sessions, found them easy to implement, and considered eCoaching beneficial for themselves and their children. This indicates that eCoaching is a socially valid family-centered practice. Future research should investigate how individual variables associated with the eCoaching influence child and family outcomes.

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Introduction

Theoretical Foundations and Play-based Learning

The centering of play-based learning is integral to early childhood educational practices, especially since play mediates cognitive, social, and language development (Bergen, 2002). Theorists have identified pretend play as an influential mediator of various developmental areas in young children (e.g., Vygotsky, 1978). Vygotsky highlights pretend play opportunities as crucial for developing young children's learning as they apply real-life ideas to non-literal contexts. Non-literal play behaviors that define pretend play can differ across materials and behaviors (Barton, 2016). Non-literal pretend play behaviors comprise play involving symbolism, persistence through imagination, and role-play scenarios, which require adherence to social rules (Loizou, 2017). The adherence to rules and utilizing internal representations during pretend play episodes are associated with self-regulation development (Savina, 2014). Non-literal ideas through shared materials also reveal opportunities for communication skills when others are involved in pretend play interactions. According to the Vygotskian perspective of play, when children assume roles during pretend play or use object substitutions for materials, they employ behaviors that increase their understanding of expression regulation and social norms (Elias & Berk, 2002; White et al., 2021).

Outlining the complexity of pretend play, Barton and Wolery (2008) categorize it into four types: 1) functional play with pretense, 2) sequencing, 3) substitution, and 4) confirmatory verbalizations. The substitution category includes specific actions such as object substitution (OS), imagining absent objects (IAO), and assigning absent attributes (AAA) (See Table 1). In social pretend play, non-literal ideas and materials necessitate communication skills for effective interaction with others. This type of play involves two or more individuals' verbal or non-verbal acknowledgment of roles or object substitutions and the joint

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planning of complex scenarios (Thompson & Goldstein, 2019). When children play pretend with peers, they share ideas and non-literal thinking to create a shared experience, such as assuming roles and determining the sequence of events. The research underscores the role of pretend play in promoting various skills. It aids language and communication development (Kızıldere et al., 2020), vocabulary acquisition (Hutagalung et al., 2020), and also emergent literacy (Nicolopoulou et al., 2015). Additionally, pretend play supports the development of communication skills, routine conversations, and oral vocabulary (Taylor & Boyer, 2020). Thus, pretend play is a valuable avenue for children's learning due to its complex nature.

Table 1. Pretend play taxonomy

Category of Pretend Play	Definition	Example from Study
Functional Play with Pretense	Utilizing objects in a way that mimics their actual use or suggests a realistic outcome.	Eric used a pretend cookie to serve to his mom when playing restaurant. Oliver used an old keyboard to act out an office play scenario.
Object Substitution (OS)	Using an object in a different way than it may have been intended.	Oliver used blocks as a "fence" when playing zoo.
Imagining Absent Objects (IOA)	Acting in a way that implies the intended object is present when it is not.	Eric held out his hand to receive "money" from his mother ordering food at his "restaurant."
Assigning Absent Attributes (AAA)	Assigning emotions or roles to oneself, inanimate objects, or others within play scenarios.	Oliver assigned roles to himself as an "office worker" and his mother as the "visitor."
Sequences	A series of two or more functional actions of play with pretense or substitution behaviors that follow a consistent theme, story, or routine.	Oliver led a tour of his "office building" using figurines. Eric worked with his mom to save a "city" using superhero figurines.
Confirmatory Verbalizations	Language used during play to communicate what is being acted out (e.g., roles, emotions, planning ideas)	Eric told his mother his action figure was "shooting out lightning."
Vocabulary	Use of term that is associated with what is being acted out.	Oliver used the terms "patient" and "doctor" when engaging in a hospital scene.

Note. Categories and definitions adapted from Barton and Wolery (2008).

According to Vygotsky (1978), within the social and internal planes, the avenue to higher mental functioning planes is deemed the "zone of proximal development" (ZPD). Within the ZPD, young children's skills can be represented in what can be performed independently and with help. When help is provided, children can increase their functioning and build competence. Within Vygotsky's framework, children's caregivers are seen as more knowledgeable and instruments in steering, making connections, and challenging the child's learning. Knowing when and how to support a young child during play requires a combination of observation and purposeful support within their ZPD.

Adult-child play interactions can be understood through the integrated, responsive play intervention model (Trawick-Smith & Dziurgot, 2010). This model seeks to balance a child's independent, self-directed play with adult engagement to promote development and learning tailored to the child's needs. In this approach, an adult observes a child's play behaviors and decides on an appropriate response based on the behaviors observed (e.g., engagement, enrichment, technical support). An interaction is considered a "good fit" when the child accepts the adult's support as meeting a need or improving their play behavior. Effective adult involvement in a child's play includes suggesting ways to expand play themes, resolve conflicts, introduce new vocabulary, and encourage cooperation (Bodrova & Leong, 2007). Conversely, a "poor fit" occurs when the adult's response does not align with the child's needs or is rejected by the child. The next step involves the adult observing the child to determine the type of support (e.g., attention, knowledge) or enhancement (e.g., vocabulary) that may benefit them.

Literature of Play and Children with Disabilities

Research has consistently demonstrated that play is a critical avenue for supporting the

developmental competencies of children with developmental disabilities, such as communication and joint attention. Various interventions, including least-to-most prompting, have shown mild to moderate progress in object substitutions (Lee et al., 2020) and appropriate functional play (Pullum et al., 2020). Adult modeling has been identified as a way to enhance young children's manipulation of items or functional play (Gmitrova, 2013; Kalkusch et al., 2021) and imitation (Ingersoll & Schreibman, 2006). Additionally, researchers have noted that caregivers who follow a child's lead using the least invasive prompt procedure and incorporate developmentally appropriate activities during play at home can enhance the child's ability to generalize skills within age-appropriate activities (Lifter et al., 2005, Quigley et al., 2018). These interventions illustrate that pretend play skills can be intentionally supported, thereby giving children with disabilities better access to the developmental benefits of play.

The effectiveness of these play-based interventions is further amplified when delivered through a family-centered approach. Studies have demonstrated that caregivers can be guided to implement play-based interventions through coaching (e.g., Miller-Kuhaneck & Watling, 2018). Research indicates that when caregivers actively participate in their child's daily routines, such as play, children exhibit improved outcomes in early childhood learning domains (Mahoney, 2009). Caregiver involvement in early learning experiences promotes play at home, aligning with family-centered practices by incorporating individual family values and interests within a sociocultural play environment.

Family-centered partnerships are fundamental to early childhood education, especially for students with disabilities. In the United States (US), the Individuals with Disabilities Education Act (IDEA, 2004) recognizes caregivers as essential in supporting children with disabilities. Professional organizations, such as the Council for Exceptional Children's Division for Early Childhood (DEC), emphasize practices that are "family-centered" in their recommended guidelines for early childhood special education providers (DEC, 2014). Various terms (e.g., family-friendly, family-oriented, family-centered care, child-centered) have been used in the context of early childhood education. In the US, the early childhood special education field frequently utilizes the term "family-centered." For the duration of the paper, the term "family-centered" will refer to practices and partnerships that position individual family values and priorities while supporting their child's outcomes. These practices promote building self-efficacy in families supporting children with disabilities (Ogourtsova et al., 2019).

Family-centered practices involve recognizing the child's needs, learning opportunities, interests, and desired activities while enhancing the caregiver's skills to enhance their support and boost self-efficacy (Frugone-Jaramillo & Gràcia, 2023; Knoche et al., 2012). Family collaboration at this level involves participants as co-equals engaged in shared decision-making toward a common goal (Friend & Cook, 1990; McWilliam, 2010; Friend & Cook, 1990). The objective of a family-centered framework of collaboration for early childhood is to offer caregivers chances to affirm their skills and boost their confidence in identifying appropriate learning outcomes within everyday activities, recognizing their child's developmental interests and needs, and developing their abilities and skills to support the child's growth while aligning with the values of the family (Knoche et al., 2012).

One way educators have embraced family-centered practices is through collaboration via coaching. Coaching caregivers utilize various adult learning strategies to improve their capacity to support their child's development while engaging in everyday routines, activities, and situations (Rush & Shelden, 2020). This systematic process, built on a collaborative relationship between coach and caregiver, involves (a) setting goals, (b) promoting self-directed learning, (c) creating strategies designed to achieve the established goals, and (d) fostering personal growth (Rush & Shelden, 2020). Consequently, family-centered interventions have shown increased implementation fidelity (Kemp & Turnbull, 2014), improvements in child performance (Miller-Kuhaneck & Watling, 2018), increased self-efficacy, and decreased caregiver stress (Ogourtsova et al., 2019).

The involvement of families in the education of young children with disabilities aligns with the sociocultural theory of development, which underscores the influence of the cultural environment on cognitive and social development (Göncü & Gauvain, 2012; Rogoff & Angelillo, 2002). Underscoring this

perspective is the culture and context in which learning and development operate (Rogoff, 2023). Three key elements are related to the sociocultural perspective on pretend play (Göncü & Vandeboncoeur, 2017). First, cultural values, either implicitly or explicitly set, dictate who participates in play and when and how they do so. Second, child development and learning are mediated by the culturally specific ways children engage in pretend play, shaped by the norms and expectations of their cultural background. Lastly, meaning is constructed in relation to others, such as caregivers and siblings, influencing the interpretations made during pretend play. Incorporating families and their sociocultural environments into play-based learning is crucial, as these factors shape the beliefs, interests, and perceptions of play among caregivers and children. Cultural values not only define play (Rentzou et al., 2019) but also determine its significance in the development of young children (Roopnarine & Davidson, 2015). Therefore, the expression of play behavior, particularly the enactment of roles and scenarios in pretend play, is deeply rooted in the family environments where children live.

Facilitation by families can address play discrepancies and promote specific developmental areas while considering a sociocultural perspective. With the increase of virtual learning starting in 2020 because of the pandemic, virtual coaching models are becoming increasingly viable for family-centered practices (Gomez et al., 2022). Studies have demonstrated positive outcomes for both caregivers and children through virtual coaching (Aguilar et al., 2023). Additionally, caregivers have reported high satisfaction and positive results from participating in coaching sessions, whether virtual or on-site (McDuffie et al., 2016). During the shift to remote services, families found that they could build better relationships with providers, and services became more individualized to meet their child's needs (Steed et al., 2022). Virtual family support has shown increased benefits, especially for families facing transportation obstacles (Keder et al., 2022; Steed et al., 2022). As a result, virtual coaching models enhance developmental outcomes and provide flexible and accessible support for families.

Present Study and the Use of Virtual Coaching

Engagement in pretend play is particularly important for preschool children (ages 3-5) as they tend to gravitate toward higher levels of imaginative play during these years (Singer & Singer, 1990). This study investigates a virtual coaching model, eCoaching, as a family-centered intervention for preschool children with disabilities, utilizing pretend play as a key component. The increased accessibility of technology and the shift to remote service delivery have led to a rise in the use of virtual coaching models. This study aimed to use eCoaching to support mothers of children with disabilities to facilitate learning through pretend play at home. Coaching activities included observation, reflection, and feedback (Fixsen et al., 2005). In addition, adult learning principles were also incorporated (i.e., Trivette et al., 2009). All sessions used a virtual coaching model that relied on video conferencing and email. This study aimed to address the following research questions as related to mothers' preschool-aged children with identified disabilities:

- 1) How does eCoaching impact mothers' understanding of how their children learn through pretend play?
- 2) How does eCoaching assist mothers in facilitating their children's learning through pretend play?
- 3) Do the characteristics and quality of pretend play behaviors in children change when their mothers receive eCoaching?
- 4) Do mothers perceive eCoaching as a socially valid family-centered practice?

Method

The study utilized a collective case study design, focusing on two mother-child pairs (Creswell & Poth, 2018) in a large US city and underwent an Institutional Review Board (IRB) approval. All participants provided consent before the start of eCoaching, and all data collected was confidential, with no identifying information stored after the data was analyzed. Operating in everyday contexts and settings, case studies examine several sources of information to provide in-depth descriptions of cases at an individual and collective level (Yin, 2017). As eCoaching relies on replicated procedures within coaching, it is an ideal

intervention for a collective case study design. The two mother-child pairs also demonstrated overlapping characteristics, making them suitable for a collective analysis. Further, as a newer medium of support, utilizing a case study design allowed for a detailed exploration of pretend play-based eCoaching through in-depth descriptions.

Recognizing the positionality and reflexivity of researchers is crucial in qualitative research (Trainor & Graue, 2014). The first author is a White female with seven years of experience teaching special education and five years as an instructional coach in US public schools. The second author is a foreign-born Hispanic female with four years of teaching experience in early childhood and elementary classrooms, and she has directed an early childhood special education teacher preparation program in the US. Both authors have extensive experience working with diverse families. We acknowledge that our backgrounds and experiences have influenced our perspectives during data analysis, shaped by our various roles in the US education system. Our frames of reference underwent critical analysis during data collection and interpretation (Merriam, 2009). By sharing our positionality and reflexive practices, we enable readers to assess any potential bias that may have impacted the investigation.

Study Participants

Two caregiver-child pairs consented to participate after being recruited via emails shared with early childhood professional organizations in the US. The mother-child pairs lived with their partners in a large midwestern city in the US. Caregiver-child pairs were eligible to participate if their child (1) was between 3 and 5 years of age and not eligible for enrollment in kindergarten, (2) had a current Individual Education Plan (IEP) for a disability identified through an IDEA assessment process, and (3) spoke English as their primary home language. In addition, caregivers needed access to the internet and technology with video conferencing. The first two pairs, who expressed interest in participation, met eligibility criteria, and completed their consent to participate, were included in the study.

Both participating caregivers were mothers and former educators with advanced degrees. Allison and Lisa were stay-at-home mothers of two sons, Eric and Oliver (4.5 years); see Table 2. Due to the COVID-19 pandemic, both children who had IEPs for speech-language delay (SLD) received speech services remotely. Allison's son Eric was also identified as having a developmental delay (DD). Eric qualified for public preschool services, but his mother elected to homeschool him temporarily due to concerns related to the pandemic. Lisa's son Oliver was attending a half-day private preschool in addition to his virtual speech services. Both mother-child pairs were families of four: a father, a mother, and two sons. Eric was the oldest sibling, whereas Oliver was the youngest in his household. A single coach (lead author) was used across pairs during the eCoaching model to control potential provider-related influences. The coach had five years of experience as an instructional coach, a master's in special education, and six years as an early childhood special education instructor.

Table 2. Mother-child pair demographics

Mother and Child	Mother				Child			
	Ethnicity	Gender	Highest Degree	Background	Ethnicity	Gender	Age	Disability
Lisa and Oliver	White	F	Masters	Previous teacher; stay-at-home mother	White	M	4.5	SLD
Allison and Eric	White	F	Masters	Previous teacher; stay-at-home mother	White	M	4.5	DD SLD

Note. DD = developmental delay; SLD = speech-language delay; M = male; Names provided are pseudonyms.

eCoaching Procedures

The eCoaching intervention occurred through Zoom™ video conferencing, phone conversations, and email (Passmore & Hughes, 2024). The eCoaching began with a phone pre-interview with each mother

conducted by the coach to gather information on their background, child’s play preferences, play behaviors, and mother’s knowledge of pretend play characteristics. Following the interview, six eCoaching cycles occurred virtually in the mother’s homes, where the coach engaged in observation and debriefing via Zoom™ video conferencing (see Figure 1). An eCoaching cycle consisted of a 10-minute virtual observation, debrief featuring goal setting, recap email, and a minimum of five days for mothers to support the implementation of set goals. The observation period was set at 10 minutes, allowing sufficient time to collect data for the subsequent debrief conversation. Sessions included only the play materials typically used by the family. These materials included blocks, action figures, animal figurines, a wooden train set, and pretend food for the two children.

A debrief conversation immediately followed each observation. During the debrief conversation, the coach and mother discussed their shared observations, developmental goals, and the intervention(s) used to address those goals. Allison desired to increase Eric’s use of language and vocabulary during pretend play and identified modeling and prompting as avenues for facilitating these behaviors. Lisa also selected prompting strategies to enhance her son’s use of complex play (e.g., AAA, OS) while incorporating emerging academic skills (e.g., writing, letter identification). Debrief conversations followed procedures outlined by Knight and colleagues (2015), with additional time spent building relationships and trust with mothers (see Figure 2). The debrief focused on conversations around shared observations to promote goal setting, where the coach facilitated Allison and Lisa’s self-efficacy through questioning and discussion. An outside researcher with experience in coaching conducted fidelity checks on 25% of debriefs, resulting in 98% fidelity to ensure protocol adherence. After each virtual debrief, the mother received a summary email outlining the discussed goals and information for the next coach-caregiver cycle. Alongside the six eCoaching cycles, the mothers collected home video samples of their children’s independent play, consisting of five 10-minute videos taken at pre-, mid-, and post-intervention stages. These videos were shared with the coach via a secure online system to provide additional data for the debrief conversations. Upon completing the six eCoaching sessions, an interviewer who had not previously interacted with the families conducted a final phone interview. This interview aimed to gather the mothers’ understanding of pretend play, their facilitation of learning through pretend play, and their perspectives on the social validity of the eCoaching model.

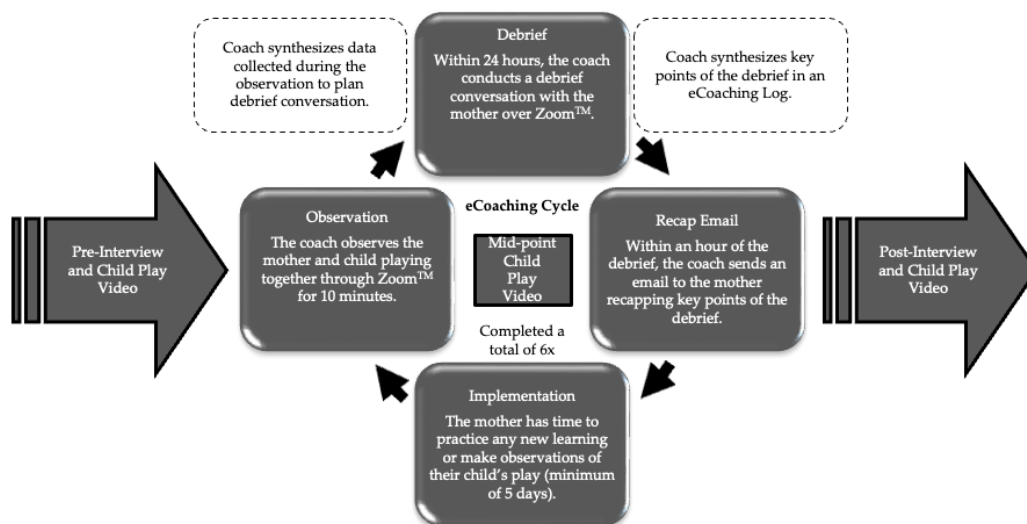


Figure 1. eCoaching Procedure

1 Relationship Building	2 Identify Area of Focus	3 Learning Around the Area of Focus	4 Identify Goals and Next Steps
<ul style="list-style-type: none"> • Coach and caregiver take time to connect on a personal level. • Coach may interact with the caregiver by asking... <ul style="list-style-type: none"> • How is your day going? • Did you do anything fun this weekend? • What are your plans for the upcoming holiday? • <i>Note:</i> Relationship building can also take place at the beginning of the eCoaching cycle before the play observation occurs. 	<ul style="list-style-type: none"> • Coach ask questions to the caregiver related to observed play session or other interactions from the previous week. • The coach and caregiver discuss specific behaviors observed. • Coach connects caregiver interactions to child behaviors. • Coach and caregiver... <ul style="list-style-type: none"> • Identify an area of focus related to play facilitation and/or the child's behaviors. • Select a strategy connected to area of focus. 	<ul style="list-style-type: none"> • Coach and caregiver actively engage in learning (e.g., model, direct instruction, brainstorming). • The coach connects the new learning to previous debriefs and the area of focus. • Coach clarifies and checks for the caregivers' understanding of the new learning (e.g., question, probe, role play). • Coach connects new learning to caregiver and child's needs and strengths. 	<ul style="list-style-type: none"> • The coach uses probes and questions to encourage the mother to develop a goal based on discussion of focus. • Coach and caregiver collaboratively set goal related to the focus. The goal should be... <ul style="list-style-type: none"> • Impactful to child needs, • Attainable in given time, • Child focused, and • Connects data to strategy. • A date and time are set for the next eCoaching cycle.

Figure 2. eCoaching debrief procedures

The eCoaching intervention occurred over 35 days for Allison and 39 days for Lisa. Enrollment included the time needed to conduct a pre- and post-interview. Each mother preferred to meet weekly, with some discrepancies for weeks that overlapped holidays. On average, debrief conversations lasted 22 minutes (range 14-36 minutes). To accommodate the mothers' convenience, virtual observations and debriefs were arranged at times and dates that fit their schedules.

Data Collection

Interviews and eCoaching Logs

Pre- and post-interviews, focusing on family dynamics, the child's play characteristics at home, and perceptions of pretend play and coaching, were conducted as semi-structured phone interviews (Allison: 55 min, Lisa: 60 min). These questions aimed to understand the mothers' perspectives on developmental benefits, play characteristics, and personal facilitation styles when engaging with their children during play. The post-interviews (Allison: 27 min, Lisa: 34 min) included questions adapted from Allen and Nimon's (2007) professional development evaluation survey and Johnson et al.'s (2016) Coach-Teacher Alliance measures, using a 5-point Likert scale format to assess the social validity of eCoaching as an intervention (see item of focus in Table 3). Both tools have been validated as reliable measures for evaluating professional learning. Interview data was audio-recorded, transcribed, and member-checked to ensure accuracy. To avoid potential bias, a researcher not involved in the eCoaching cycle implementation conducted the post-interviews, while all eCoaching debrief conversations were video and audio recorded. After each debrief, key points such as goals, shared resources, and next steps in facilitation strategies were summarized in an eCoaching log spreadsheet to gather quantitative code values and synthesize the progression of eCoaching.

Table 3. Mothers' self-assessment Likert scale ratings following eCoaching

Dyads and Categories	Lisa	Allison
Content	4.7	5
The coach covered the topics in sufficient detail.	4	5
My understanding of the facilitation of pretend play with my child PRIOR to eCoaching.	4	4
My understanding of the facilitation of pretend play with my child AFTER to eCoaching.	5	5
My ability to apply concepts to an actual problem or situation in the area of pretend play facilitation with my child PRIOR to eCoaching.	4	3
My ability to apply concepts to an actual problem or situation in the area of pretend play facilitation with my child AFTER to eCoaching.	5	5
Working Relationship	5	5
The coach and I trust one another.	5	5
The coach was approachable.	5	5
The coach showed a sincere desire to understand my family and support my child.	5	5
Dyads and Categories	Lisa	Allison
eCoaching Process	5	5
The provided support that matched the needs of my family.	5	5
The coach provided me with practical and useful feedback and strategies.	5	5
Investment	5	4.5
The time spent working with the coach was effective and productive.	5	5
I would recommend eCoaching to another caregiver.	5	4
Benefits of eCoaching	4.5	5
My child benefited from my work with the coach.	4	5
The coach had a positive impact on my child's play behaviors.	5	5

Note. Items adapted from the professional development evaluation survey (Allen and Nimon, 2007) and Coach-Teacher Alliance measures (Johnson et al., 2016); 1 = *very poor*; 2 = *poor*; 3 = *acceptable*; 4 = *good*; 5 = *excellent*

Play Observations

Observation data was collected in two main ways. Firstly, through mother-child interactions during their play sessions. These interactions, focusing on play facilitation, were observed during 10-minute sessions conducted over Zoom™ as part of the eCoaching procedures (n = 6). The play observations served two purposes: informing the eCoaching debrief conversations and documenting the mother's play facilitation over time using an adapted version of the integrated, responsive model of play intervention (Trawick-Smith & Dziurgot, 2010). Interactions between mother and child were coded as 'good-fit' or 'poor-fit' based on the child's response, with subcategory coding for antecedent and consequence behaviors (i.e., child need, child response, adult behavior).

Secondly, children's play behaviors were observed independently five times for each child. Mothers were asked to collect naturally occurring home videos at pre-, mid-, and post-intervention stages during the eCoaching sessions. Also, to help control for potential bias in the mothers' selection of a video, two additional instances of a child's play behavior were taken from the mother-child interaction videos during eCoaching after the pre- and post-mother-provided videos. At least a week occurred between each child's play observations. These play observations were coded using a 10-second interval recording with an adapted version of the Play Observation Scale (POS-A) (Rubin, 2001) and using pretend play taxonomy (Barton & Wolery, 2008). This tool assessed cognitive play (i.e., functional, exploratory, construction, pretend, and games-with-rules) and social play (i.e., solitary, parallel, group). When pretend play was observed, secondary codes aligned with the pretend play taxonomy behaviors (Barton & Wolery, 2008).

Coding of facilitated play interactions and the POS-A incorporated interrater agreement (IOA) for 33% of observations across mother-child pairs. Two doctoral students with experience as early child educators and researchers were utilized for each observation tool. The training was carried out using videos of caregiver-child pairs who were not part of the study, with maintenance training conducted midway through data collection. IOA reached 96% for facilitated play interactions, with 97% agreement for additional subcategories. An overall agreement of 92% was achieved on the POS-A data across all

categories represented in the POS-A.

Data Analysis

The data was first prepared and analyzed individually for each mother-child pair before a collective analysis was conducted across pairs. Throughout the eCoaching process, researchers engaged in ongoing data analysis, utilizing field notes and memoing to identify initial trends. Individual case information was thoroughly read, viewed, and examined to understand the details specific to each mother-child pair (Creswell, 2009). The analysis involved qualitative, descriptive, and visual examination of each pair across all instruments. Following the individual analyses, a cross-case analysis was performed. This analysis applied pattern matching to account for all collected evidence and support plausible internal validity explanations (Yin, 2017). The data analysis followed an ongoing, interrelated, and simultaneous process that included 1) organizing and managing data, 2) reading the data and memoing emergent ideas, and 3) describing and classifying codes into themes (Creswell & Poth, 2018). Sub-category codes (e.g., "mom connects to child's interest," "mother connects to taxonomy") were consolidated into major themes (e.g., "connections"). These themes were organized into a codebook with definitions and examples. Frequency and duration data were extracted from the qualitative data to quantify these themes. Finally, the fidelity of the eCoaching procedure and each research question were matched across the mother-child pairs, aligning with the theory that eCoaching would positively impact these variables.

Findings

Research Question 1: Mothers' Acquisition of Knowledge

During their pre-interviews, Lisa and Allison identified the sources they relied on to develop their parenting knowledge. Allison preferred social media accounts, while Lisa leaned towards parenting books or professional development provided by her son's preschool. Both mothers also mentioned reaching out to peers with similarly aged children. During eCoaching, a key strategy for constructing new learning about play was the mothers' ability to connect their background knowledge and experiences with their children. These instances were coded as "connections" during debriefing conversations for both Lisa (n = 22) and Allison (n = 13). For instance, Lisa related the "integrated, responsive model of play intervention" (Trawick-Smith & Dziurgot, 2010) to leading discussions in her work as a high school teacher. Allison referenced Vygotsky's "zone of proximal development" (Vygotsky, 1978) when discussing prompting strategies. "Connections" were also made to previous play observations. For example, when discussing the role of assigning absent attributes in pretend play, Lisa linked the concept to a game her son Oliver enjoyed playing, "dog catcher," where children alternated parts.

During eCoaching, Allison and Lisa increased their participation in debriefs by contributing to play observations made inside (n = 52; Allison = 24, Lisa = 27) and outside (n = 18; Allison = 8, Lisa = 10) eCoaching sessions. These contributions were coded as "sharing" and demonstrated their efficacy in leading conversations and engaging in responsive problem-solving. "Sharing" is a crucial element of eCoaching and relates to the establishment of eCoaching goals for routine implementation (Knight et al., 2015). Additionally, "sharing" helps Allison and Lisa boost their self-efficacy in supporting their sons' developmental needs through play. For instance, while observing the pretend play behavior of assigning absent attributes (AAA) of emotion, Allison identified how Eric would "kind of... do the emotions. Like 'errr!', but not necessarily saying I am mad." This discussion led to a goal of prompting more specific language with Eric during these play scenarios.

Mothers collaborated on setting goals by making suggestions about their family routines and their child's preferences. This collaboration occurred in the first session for Lisa and session two for Allison. Allison also showed an ability to generalize goals for her son to other behaviors or types of play (e.g., games-with-rules). Lisa noted her son's affinity for seeing his dad work from home and provided "office materials" Oliver could use to pretend play "office." Similarly, Allison adapted the idea of play planning (Craig-Unkefer & Kaiser, 2002) to meet the needs of her family by prompting a play plan conversation on the walk home from the park. The intention behind Allison's facilitation of play planning was to promote

advanced pretend play verbalizations and sequencing in her son, Eric. In the final session, both mothers outlined specific goals related to pretend play that they planned to use beyond the six eCoaching sessions.

Following eCoaching, Allison and Lisa deepened their understanding of the developmental benefits of pretend play for their children. This enhanced understanding was directly linked to the individual goals set for each mother-child pair. Allison noted that moving beyond fighting behaviors in play provided more language opportunities for Eric. Lisa explored how Oliver's natural interest in pretend play could be integrated with academic activities, such as writing and language. Both mothers also emphasized pretend play's role in supporting expressive communication and vocabulary development, aspects they had not mentioned in their pre-interview.

Research Question 2: Mothers' Role in Facilitating Pretend Play

The mothers efficiently resolved conflicts and enriched play scenarios through increased 'good-fit' interactions while engaging in pretend play with their children. Allison and Lisa maintained a high percentage of 'good-fit' interactions during eCoaching, potentially due to their educational backgrounds. Both mothers, however, increased their ratio of enrichment opportunities through interactions coded as opportunities to enhance pretend play. Most of these enrichments aligned to language and vocabulary when playing with their sons. For example, Lisa was able to offer suggestions for explorations of writing with Oliver through (a) making a map for a pretend zoo, (b) making signage for a hotel, and (c) making business cards to use when playing office. By contrast, Allison aimed to support Eric's use of expressive communication by expanding his pretend play scenarios and language opportunities via a version of play planning (Craig-Unkefer & Kaiser, 2002). She also spent time observing Eric's natural inclinations, providing scaffolding via questions or modeling (e.g., "Baby, where are you going?"; "We have to save the city"). Regarding language, the most common form of indirect support involved encouraging Eric to elaborate on words such as "there," "here," and "this." For instance, Allison encouraged Eric to use specific vocabulary while building a structure by asking, "What are you putting there?" Eric answered with the word "roof." This prompt enabled Eric to practice descriptive language in identifying object substitution (OS) instances. Both mothers discovered that these opportunities allowed them to scaffold learning while leveraging their children's intrinsic interests in pretend play.

Allison and Lisa recognized the importance of taking a more intentional role in their child's play as a significant area of personal growth following eCoaching. In pre-interviews, both mothers described adopting a bystander role during their children's play because they needed to "multi-task" (e.g., cleaning, making dinner, taking care of a sibling). Although the need to "multi-task" was still expressed in post-interviews, both mothers wanted to be more "intentional" while their sons played. Regarding language goals, Allison intended to be "more intentional with what I am trying to get out of him during play." Similarly, Lisa wished to "seamlessly jump in and add an element" to enhance her son's play. These reflections demonstrate Allison and Lisa's ability to move beyond being passive observers, finding ways to intentionally support learning through pretend play in a manner that fits into their family's daily routines.

Research Question 3: Children's Pretend Play Behaviors

Eric and Oliver preferred using blocks and figures during pretend play. Oliver also incorporated more scenario-based roles, such as soldier and office worker. Throughout eCoaching, both children showed increased behaviors related to the pretend play taxonomy (Barton & Wolery, 2008), as detailed in Table 4. The table shows instances when the mother was actively engaging or invited to participate on the outskirts of the play. The children demonstrated the most significant increase in their ability to assign absent attributes (AAA), with Eric initially showing no AAA behaviors before eCoaching. Oliver's AAA interval behaviors increased dramatically from a low of 5% to a high of 72%. Moderate increases were observed in pretend play sequencing behaviors, with Eric showing the most substantial growth. There were variable changes in the use of verbalizations. Eric's verbalizations were more pronounced when his mother was present, although his growth in this area was less evident than Oliver's over time. Both mothers noted that their child's vocabulary increased during pretend play due to eCoaching. Across participants, no notable changes were seen in imagining absent objects (IAO) or object substitution (OS). The ability to observe IAO

and OS behaviors could be limited due to their tendency to occur primarily in the child's imagination. Additionally, OS was observed more frequently (accounting for 100%) when building materials were included in the child's pretend play.

Table 4. Child play behaviors on the play observation scale (POS-A)

Individuals	Oliver					Eric				
	1	2*	3	4*	5*	1	2*	3	4*	5
Observations										
Pretend Play Behaviors	37	40	59	54	46	55	45	34	42	48
Verbalizations	16	23	31	21	41	7	39	21	29	12
Vocabulary	2	8	5	5	16	0	13	1	5	3
Functional Play	10	19	45	6	1	51	0	1	0	32
AAA	3	9	0	15	43	0	42	33	35	38
IAO	11	0	0	22	2	0	24	0	2	0
OS	24	23	0	14	1	0	0	0	38	0
Sequences	31	0	44	8	42	7	42	33	38	43

*Note= Observations in which the child was playing with their mother

Following eCoaching, Allison and Lisa shared their children's enjoyment of the time spent playing together. Lisa noted, "[Oliver] would cherish the times, and so did I. I think I'll probably incorporate a couple more sessions of times during the week where I could sit down and intentionally play with him more than I did before." Allison repeated this sentiment: "Eric thought it was fun!" The children's fondness for having their mothers as play partners was evident in post-observation videos meant to capture independent play, as all children found ways to discuss and verbalize their play behaviors with their moms.

Research Question 4: Social Validity of eCoaching as an Intervention

As indicated by the post-interview Likert questions (see Table 3), the coach-mother relationship was a satisfying component of the eCoaching process for Allison and Lisa. When discussing this relational aspect, Lisa remarked, "I think it was just good to feel like you had somebody else on your side to give you advice and feedback." Mothers reported an increased sense of their "ability to apply concepts to an actual problem or situation in the area of pretend play facilitation." Regarding the eCoaching process, both mothers expressed high satisfaction with the support provided and how it met their families' needs. While they saw their children benefiting from eCoaching, Lisa felt she was the "greater beneficiary" of the process, as it provided her with "useful feedback and strategies." In their post-interviews, Allison and Lisa mentioned feeling isolated due to being stay-at-home mothers and saw eCoaching as supporting their development as parents. Lisa appreciated the targeted and specific feedback from eCoaching, which she found lacking in previous learning activities (e.g., readings, school-based professional development). She stated, "I liked to have [the coach] watch while we played and then report back. It was interesting that she was able to pick up on stuff I was not. That I had not really been thinking about." Both mothers would recommend eCoaching to other caregivers. However, Allison noted that some caregivers might be challenged with the coaching process due to the open-ended nature of setting goals and receiving feedback during debriefing sessions.

Conclusion and Discussion

As a means of caregiver support through play, eCoaching demonstrated the potential to address caregivers' goals for their child with a disability within various developmental domains through pretend play. Mothers identified the supportive relationship with the coach as a valued factor and source of encouragement provided during eCoaching. The significance of interpersonal coaching skills in achieving family-centered outcomes is underscored by the demonstrated relational trust and participatory responsiveness in eCoaching experiences (Dunst & Espe-Sherwindt, 2016). Moreover, the study's findings highlight the convergence of educator coaching models, integrating principles such as applied learning (Desimone & Pak, 2017) and adult learning (Collins, 2004), as well as individualized learning and feedback (Knight et al., 2015) in coaching families.

Family-centered practices in early childhood aim to empower mothers with the competence and confidence to recognize their children's developmental needs and interests (Frugone-Jaramillo & Gràcia, 2023; Knoche et al., 2012). Leveraging existing knowledge—a key aspect of adult learning principles (Collins, 2004)—mothers could make new information introduced during eCoaching more accessible. Their experiences beforehand as educators gave them a foundational level of knowledge, which Showers et al. (1987) identify as crucial for coaching "buy-in." Mothers also exhibited choice in setting goals for themselves and their children, which research has indicated builds self-efficacy and motivation (Schunk & DiBenedetto, 2021). Over time, mothers became more vocal in sharing ideas and data, guiding progress toward their child's current and future goals. The integration of adult learning principles was evident as mothers demonstrated self-direction in the relevance of outcomes for themselves and their children (Collins, 2004). By the last debrief session, the mothers had outlined strategies to incorporate into their daily routines, focusing on sustaining the engagement in pretend play initiated through eCoaching.

Mothers highlighted the advantages of pretend play, aligning with literature on its benefits for literacy skills (Nicolopoulou et al., 2015), language and communication (Kızildere et al., 2020), and vocabulary acquisition (Hutagalung et al., 2020). Given that both of their sons had SLD, the goals of pretend play were heavily focused on enhancing expressive language skills. Research consistently underscores the positive correlation between pretend play and language development (Lillard et al., 2013), with children engaging in more elaborate pretend play scenarios exhibiting higher levels of communication (Pizzo & Bruce, 2010). This was particularly evident in Eric, who, in addition to an SLD, was diagnosed with a DD and displayed less intricate pretend play behaviors compared to Oliver. Significant disparities were noted in the verbal interactions of the two children during play. Eric's language delays prompted his mother to prioritize goals centered on enhancing expressive language skills, such as sentence construction and pronunciation.

Using the integrated, responsive model of play intervention revealed an increase in mothers' ability to support 'good-fit' interactions during play. This model is effective in similar studies with preschool-age children educators worked with (Trawick-Smith et al., 2016). Researchers have noted links between advanced degrees in education, which both mothers held, and increased facilitation of 'good-fit' interactions (Trawick-Smith & Dziurgot, 2010). Pretend play opportunities led to quicker conflict resolution and provided chances for enhancement related to eCoaching goals (e.g., vocabulary, sequencing). Consistent with previous literature, mothers in eCoaching often used adult prompting as a strategy with their child, leading to increased pretend play sequences (Barton et al., 2019), AAA (Stahmer, 1995), social pretend play actions (Kalkusch et al., 2021), and vocabulary (Kim et al., 1989).

Moreover, during their interactions in pretend play, mothers effectively prompted increased verbal expressions and expanded vocabulary, consistent with prior research findings (Kızildere et al., 2020). This rise in verbal engagement corresponds with the communication needed to create a mutual understanding of the non-literal actions in pretend play (Fein, 1981). Unlike solitary play, which relies primarily on individual imagination, facilitating pretend play requires communication to introduce different ideas into the play scenario (Bruner, 1972). This process of building shared understanding through communication is known as a "joint play narrative" (Hakkarainen et al., 2013). The presence of a "joint play narrative" was evident in the interactions between mother and child through discussions of roles (AAA) and object substitutions. Narratives, especially within the context of pretend play during caregiver interactions, offer valuable opportunities for higher-order thinking discussions, particularly for children aged 4 to 5 (Frausel et al., 2021). The American Academy of Pediatrics suggests that children with limited verbal abilities may express themselves through language within playful contexts (Ginsburg et al., 2007). Eric and Oliver exhibited increased verbal engagement when playing with their mothers, with Eric showing the most notable improvement. These advances in vocabulary acquisition through play are supported by previous literature (Hutagalung et al., 2020), with researchers advocating for pretend play as a conduit for language development (Lillard, 2013).

During the eCoaching sessions, Eric and Oliver enhanced their ability to incorporate OS, AAA, and

sequences into their pretend play (Saral & Ulke-Kurkcuoglu, 2020). The literature has noted differences in complex pretend play behaviors among children with DD, like Eric (Kasari et al., 2013; Lifter et al., 2011). The prompting strategies used by the mothers align with previous literature on pretend play interventions (Barton et al., 2019). A study by Meacham et al. (2014) observed a similar phenomenon, finding that open and closed questioning during pretend play increased language and language modeling in preschool-aged children. The rise in verbalizations and vocabulary may be linked to the increased questioning, modeling, and communication about non-literal behaviors when children engage in play with their mothers.

Implications for Practice, Policy, and Future Research

Using eCoaching through pretend play offers a promising family-centered practice to support children with developmental delays. Pretend play is intrinsically motivating to preschool-aged children, and the complexity of pretend play as a cognitive form of play expression allows for multiple entry points to learning. Within this eCoaching model, the importance of caregivers' ability to draw on background knowledge was central to their learning. Therefore, coaches should take the time to incorporate knowledge of an individual's background. Additionally, both mothers felt the coach centered eCoaching around their family and child and praised the relationship formed with their coach. These comments reveal the interpersonal nature of a coaching intervention (Gardiner & Weisling, 2020) and that the relationship can be achieved virtually. As policies that inform early childhood and special education practices evolve, policymakers should consider the virtual delivery of services through an eCoaching model in allocating resources. For example, future policy may consider guidelines on technology privacy, reimbursement for technology resources, and guidance on remote family-based support as an alternative and effective method of service delivery.

A limited sample size was used to describe each mother-child pair (Yin, 2017), and these participating dyads were not randomly selected. Findings in this study are promising, and replication with greater attention to caregivers of diverse backgrounds (e.g., education, gender) would be a natural progression of this research. Research on eCoaching should consider measuring caregivers' background knowledge, as prior experiences have been shown to influence eCoaching outcomes. Future studies should also explore the influence of caregivers on their child's self-directed play ideas and examine how a caregiver's presence might unintentionally change the child's play. These interactions could be viewed as trade-offs in how facilitation affects various developmental domains in children. Additionally, examining individual variables associated with the eCoaching cycle, such as observation, debriefing, and virtual elements, and their corresponding outcomes would provide valuable insights for the field. Lastly, following up with mothers and children post-eCoaching would provide greater insights into the short-term and long-term influences of eCoaching.

Overall, the mother's outcomes via eCoaching practices using pretend play are promising. Both children exhibited needs that benefited from participation in eCoaching through pretend play. Furthermore, mothers conveyed a high level of contentment with eCoaching, recognizing it as an excellent family-centered approach to support children with developmental delays. These mothers honed their abilities in observing and engaging responsively, focusing on enhancing their child's individual development within the home environment during pretend play.

Declarations

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