



## Engagement between Parents and Toddlers with Autism: A Qualitative Multiple-Case Study \*

Emine Erden <sup>1</sup>, Hannah H. Schertz <sup>2</sup>

### Abstract

This qualitative multiple-case study comprehensively examined the circumstances that supported and hindered social engagement in the three toddlers with autism when they interacted with their mothers. Directive actions of mothers for controlling and teaching purposes and requesting actions of toddlers resulted in instrumental engagement during which power struggles were sometimes observed. The findings indicated that social engagement was established when one interacting partner's social initiation was accepted with a social response from the other partner. Those socially engaged moments were first built upon the toddlers' individual interests but maintained only by continuous back-and-forth responses from both mothers and toddlers manifesting a transactional sequence during which the schema of their interaction continuously changed, adapted, and developed. This finding revealed that social, rather than instrumental, engagement may lead, possibly, to a sense of joy in these children while interacting with their mothers. One further approach related to this finding can be concentrating on the child's social motivation (e.g., having fun), rather than non-social motivation (e.g., receiving a favorite snack or toy) while interacting. Such an approach can be a promising avenue for optimally encouraging social purposes of engagement in toddlers with autism.

### Keywords

Autism spectrum disorders  
Parent involvement  
Qualitative studies  
Young children with autism  
Engagement

### Article Info

Received: 11.06.2021  
Accepted: 11.11.2022  
Online Published: 01.31.2023

DOI: 10.15390/EB.2023.11379

\* This article is derived from Emine Erden's PhD dissertation entitled "Social engagement in toddlers with autism", conducted under the supervision of Hannah Schertz.

<sup>1</sup> Hasan Kalyoncu University, Faculty of Education, Department of Special Education, Turkey, [eerdenemine@gmail.com](mailto:eerdenemine@gmail.com)

<sup>2</sup> Indiana University, Faculty of Education, Department of Curriculum & Instruction, ABD, [hschertz@indiana.edu](mailto:hschertz@indiana.edu)

## Introduction

Difficulty in interacting with people is not only a core challenge but also a lifelong condition across the children on the autism spectrum (American Psychiatric Association [APA], 2013). Therefore, starting from early years, the concept of engagement between young children with autism and their parents is needed to be comprehensively investigated through qualitative lenses rather than just relying on the quantitative increases in word utterances. Factors facilitating and hindering social engagement between toddlers with autism spectrum disorders (ASD)<sup>3</sup> and parents during their interactions can be illuminated with qualitative examinations.

Proficiency at social communication in early years can be achieved by understanding the specific actions leading (or not) into social engagement when toddlers with autism and their parents interact. Understanding such actions for building early social engagement becomes significant since the related literature (Blair, 2002; Raver, 2002) highlights the close link between competence in social engagement and adaptive outcomes such as later language development and academic success. For example, the readiness for school is highly influenced by young's children early social-emotional development (Raver, 2002). Likewise, in young children with autism, early social competence was also found to be highly correlated with their later social and language development (Charman et al., 2003; Freeman, Gulsrud, & Kasari, 2015; Markus, Mundy, Morales, Delgado, & Yale, 2000). All these findings underline the need for more studies focusing on improving early social engagement, as the relationship between social communication and other developmental areas is clearly documented.

### *Social and Instrumental Engagement*

Young children with autism and their parents can engage with people in their immediate surroundings for either socializing purposes or instrumental purposes (requesting or following parents' directions forms) (Schertz, Call-Cummings, Horn, Quest, & Law, 2018) (See Table 1). As for the scope of this study, we were interested in the social purposes (initiating and responding forms) while parents and their toddlers with autism interact in which the partner takes the other's interest(s) into account and together they share positive affect with a playful quality.

**Table 1.** Definitions of Social vs. Instrumental Engagement

	<b>Social Purposes</b>	<b>Instrumental Purposes</b>
Responding form	Following a point to an object/event through a partner or eye gaze to share interest (Adamson, Bakeman, & Deckner, 2004; Mundy et al., 2003; Kasari, Gulsrud, Paparella, Hellemann, & Berry, 2015)	Following directions in response to another's request (Schertz, Call-Cummings et al., 2018)
Initiating form	Verbal commenting, nonverbal commenting, and using eye-gaze to share attention (Mundy et al., 2003; Schertz, Call-Cummings et al., 2018)  Pointing to sharing information, experience, or intentions with others (Adamson et al., 2004; Kasari, Sigman, Mundy, & Yirmiya, 1990; Mundy, 2016)	Requesting to get a desired object or action (Adamson, McArthur, Markov, Dunbar, & Bakeman, 2001; Mundy, 1995; Schertz, Call-Cummings et al., 2018)  Didactic instruction from parent to child (Schertz, Call-Cummings et al., 2018)

Social initiating is defined as unprompted and spontaneous actions, such as commenting on an event or object, pointing to an object to share an experience showing playful intent, which may or may not be followed by looking at the parent's face or eyes (Adamson et al., 2004; Kasari et al., 1990; Mundy et al., 2003). Social responding is defined as social responses, which may or may not involve objects, toward social initiations made by communicative partners (Kasari et al., 2015; Mundy et al., 2003).

<sup>3</sup> To avoid employing the word "disorder" for such a young group of children only autism has been used instead.

Regulating parents' behaviors by orienting toward or approaching them to get a favorite object or have an activity is defined as requesting (Adamson et al., 2001; Mundy, 1995; Schertz, Call-Cummings et al., 2018). For example, a child approaches his parent by looking down, pulls his parent's hand, and places it on the button of a toy car to flash its lights. The child seems to be task-oriented and makes a request to his parent by regulating his movements, thereby getting what he wants. Acting according to the requests made by the parents was defined as following directions (e.g., expecting the child to reply in a certain way) (Schertz, Call-Cummings et al., 2018). For example, while naming animals in a book, the mother tells: "This is a cow. Say cow." Then the toddler repeats cow. The mother points to another animal and says: "This is a sheep. Say sheep." Then the toddler says: "Sheep." The toddler passively does what the mother tells, and the mother is being directive and expecting certain answers from the child. Although they are both interested in the same book, the child clearly follows the directions and adds nothing to the interaction from his perspective. Such examples of engagement (e.g., requesting and following directions) are called instrumental engagement in the current study.

### *Qualitative Studies on Engagement between Toddlers with Autism and their Parents*

Many early intervention studies have focused on improving the engagement between toddlers with autism and their parents in natural contexts (Brian et al., 2022; Kasari et al., 2015; Schertz, Odom, Baggett ve Sideris, 2013, 2018; Shire et al., 2017; Wetherby et al., 2014). Following an intervention, pre-verbal social-communication outcomes were assessed quantitatively by these large-scale randomized trial studies. Such examples of investigations examined imitation, turn-taking and joint engagement performances in toddlers with autism and focused solely on the child with autism and child actions in isolation but did not concentrate on the corresponding parents' actions in response to those of toddlers. Furthermore, Graff, Berkeley, Evmenova, and Park (2014) found in their review study on autism research that the most of the published intervention studies involved group research methodologies. These studies contribute to the related literature. However, few number of studies qualitatively analyzed functions of engagement between very young children with autism and their parents (e.g., Schertz, Call-Cummings et al., 2018), and fewer on the sequential and transactional analysis of actions performed by toddlers with autism and their parents during their interactions (e.g., Uzonyi et al., 2021). More detailed qualitative studies depicting the whole picture of pre-verbal early social engagement between toddlers with autism and their parents during the interaction are needed (Mundy et al., 2003).

Qualitative studies investigating engagement between children with autism with their communicative partners within the context of interaction gained importance in the 1980s. Having a scope for examining all participants' actions in the environment where they occur may show circumstances that facilitate and hinder social engagement during interactions. For example, Duchan (1983) examined the interaction between an adult and an elementary school child with autism and found that the adult used a teaching style, which was directive and controlling when interacting with the child with autism and resulted in no initiation bids from the child. In another study, Geils and Knoetze (2008) examined the interaction style of a six-year-old child with autism and his co-participants (mother, father, and a volunteer). Short, simple utterances and showing an activity-based playful affection was found as assisting coordinated interactions. It was However, the co-participants' directive actions (e.g., repetitive questioning) resulted in a failure of engagement and the child's withdrawal.

These earlier studies, although, focused on elementary school students with autism, interaction styles between younger children with autism (e.g., preschoolers) and their parents have become a topic of investigation in the last decade. For example, Diken and Mahoney (2013) investigated mothers and their preschool children with autism during an interaction. They have found that when mothers were highly directive, achievement-oriented, and less responsive to their children, failure of engagement on the children's side was observed. In another study (Töret, Özdemir, & Özkubat, 2015), it was found that responsiveness and emotional expression were low in parents when interacting with their children with severe cases of the autism spectrum. Similarly, Oğuz and Sönmez (2018) found in video recordings of

parent-child interaction dyads that when parents of young children with autism (aged 36-72 months-olds) were emotionally less expressive and less responsive, their children were unengaged. In a recent study (Arslan & Diken, 2020), thirty father-child interaction dyads during their free play were examined using the Parental Behavior Rating Scale for Turkish Version (PBRS-TV; Diken, 2009) and Child Behavior Rating Scale-Turkish Version (CBRS-TV; Diken, 2009). Achievement and teaching-oriented interaction styles of fathers resulted in children being unengaged, but when fathers become emotionally responsive, their engagement of children with autism increased.

Analyzing such interactions between children with autism and adults have contributed to the field by illuminating types of interactional styles leading (or not) into engagement and showing that engagement between children with autism and their communication partners is complex and dynamic. However, these studies coded behaviors of adults at one time and those of children at another time by using scales while relying on the definitions only used in these instruments. Open-ended descriptions of sequences in communicative partners' actions that were leading (or not) into engagement are not available. Besides, all these studies concentrate mostly on older children with autism (e.g., preschoolers, kindergarteners, and elementary schoolers) which brings a need to proceed further for illuminating how the engagement pattern emerges and develops between younger children with autism and their parents.

Several qualitative studies analyzed engagement between parents and very young children with autism using video dyads (Campbell, Leezenbaum, Mahoney, Moore, & Brownell, 2016; Patterson, Elder, Gulsrud, & Kasari, 2014; Pierucci, 2016; Schertz, Call-Cummings et al., 2018; Uzonyi et al., 2021). For example, Patterson et al. (2014) investigated the association between parental interaction style and child-initiated joint engagement. Using a set of standardized toys in a clinical setting, parent's responsiveness and directiveness and children's initiatives and responses were assessed by two rating scales, the Maternal Behavior Rating Scale (MBRS: Mahoney & Perales, 2003) and the Child Behavior Rating Scale (CBRS: Mahoney & Perales, 2003). While parents were rated higher on directiveness and lower on responsiveness during interactions, the children were found to be unengaged, focusing only on objects over two-thirds of the interactions and being jointly engaged in one-third of the interactions.

Patterson et al. (2014) considered joint engagement as a criterion for social engagement, but it could be broader than the definition used in this study. Besides, all the definitions of parents' responsiveness, directiveness, children's initiatives, and responses were based on the MBRS and CBRS rating scales. Therefore, the researchers might likely have missed instances of social engagement not defined in these instruments. An important criterion for the engagement was eye contact in this study, but for the engagement to be considered as social, eye contact may not always be necessary because meaningful engagement with his parent is possible for a young child with autism without eye contact. To illustrate, a toddler looks at a cow in a book and says, "moo moo" and laughs. Then his parent points a dog on the next page, says "woof woof" and smiles, and her young child joins her by laughing. After that, the toddler turns the page and looks at a cat, says "meow meow" and starts laughing together with his parent. As depicted in the example, the parent and her young child engaged with no look at each other's faces. Thus, missing such meaningful scenes of social engagement is possible if eye contact is required.

Pierucci (2016) documented parents' scaffolding techniques by analyzing three mothers-toddlers with autism play dyads which were retrieved from an intervention study for children on the autism spectrum. This study aimed at investigating the significance of scaffolding strategies (requesting, prompting, and commenting) in promoting and preserving play competence in toddlers with autism. It was found that mothers increased the number of scaffolding techniques after participating in an intervention during interactions with their toddlers. It can be argued that scaffolding strategies in Pierucci (2016)'s study were simplified and reduced to three simple classifications. Using other scaffolding strategies, participating young children with autism and their mothers might have benefited from extended engagement moments. Besides if the only outcome criterion was not the increase in the number of pretend plays, the quality of engagement between toddlers and mothers has been more appropriately measured. Unstructured format, rather than relying on an instrument only, could have been used to analyze pretend play performance of toddlers. Qualitative lenses on open-ended depiction of pretend play performances of toddlers might have revealed the details of engagement between these toddlers and their mothers.

In another study, Campbell et al. (2016) analyzed play actions and social engagement of low-risk (LR—a toddler without an older sibling with autism) and high-risk (HR—a toddler with an older sibling with autism) toddlers during structured exchanges with an examiner and natural exchanges with their parents. For assessing the outcomes, rating scales [adapted from the NICHD Early Child Care Research Network (1999)] were used. Ten-minute parent-toddler and examiner-toddler video recordings were analyzed using assessment tools developed for measuring play and social engagement in young children with special needs. The findings showed that the toddlers who had autism diagnosis exhibited less pretend play examples with parents during natural exchanges than the toddlers who did not have autism diagnosis. The HR toddlers who later had autism diagnosis also received lower points on the structured pretend play examples during interactions with the examiner. During unstructured play sessions, parents showed high rates of warmth and social responsiveness to all HR toddlers. This study highlighted parents' responsiveness as a significant component during interactions with toddlers to cultivate their early social engagement. However, those toddlers' actions in response to their parents' actions were not depicted. A detailed analyses of toddlers' actions with qualitative lenses can enrich both our understanding and knowledge on social engagement between toddlers with autism and their parents.

In all these studies, although discrete actions of either parents or toddlers were coded, the sequence of those actions was not examined closely. In other words, specific actions of either mothers or toddlers in response to their communicative partner's actions were not investigated. Besides, definitions of engagement were too narrowly focused and restricted to a certain tool or an instrument with no consideration of contextual circumstances (e.g., the direction of looks, mimics, posture, and positioning of each communicative partner) within engagement. As a response to the need for contextual analyses of parent-child interactions, Schertz, Call-Cummings et al. (2018) investigated communicative functions (social and instrumental) within interactions between toddlers with autism and their parents. First, contextual interpretation was included into each interaction video transcription. Then literal (observable to anyone and objective) and inferential (understood and interpreted by looking at the contextual interpretation) meaning were applied to the data during the coding procedure. Such form of coding provided to distinguish the initiator and the responder in each action during interactions. They have found that some actions of parents and their young children with autism (e.g., looking at each other faces, signs of positive affection, such as smiling at the partner and laughing together) have been reported as predictors of the partner's social engagement.

Uzonyi et al. (2021) looked at the transactional influences in interactions between parents and their toddlers at risk for autism (a total of 87 parent-toddler dyads). Using parent-child engagement recorded videos, they examined the reciprocal discrete actions of each communicative partner during the interaction in a clinical setting using a set of standardized toys. Initiating and responding behaviors are coded using an instrument, Transactional Engagement Coding (TEC). Mostly, parents' initiating behaviors (e.g., communication with words or gestures and imitating the child's actions that s/he does with objects) were found to be effective in establishing and maintaining social engagement with their toddlers. However, those initiating behaviors were coded using a single instrument only. There is a possibility of not capturing all the behavior profiles in a parent-toddler engagement using the definitions only listed in this instrument and this may lead to missing some performed actions either by toddlers or parents. Furthermore, the actions of each communicative partner in natural settings, not only in a clinical setting, with their own toys or materials may have added to the diversity of actions observed in each parent-toddler dyad.

Therefore, more studies broadly defining engagement, open-endedly depicting discrete actions of both interacting partners sequentially (not in isolation and at different times by using a scale or an instrument), qualitatively investigating what purposes toddlers with autism and their parents hold during their interactions are needed. Those efforts may help to identify essential qualities for building meaningful social (not instrumental) engagement between parents and their toddlers with autism. Thus, the purpose of the current study is to investigate the factors promoting and hindering social engagement between parents and toddlers with autism. The research questions are:

- Research Question 1 (RQ1). What facilitates social engagement in toddlers with autism during interactions with their parents?
- Research Question 2 (RQ2). What hinders social engagement in toddlers with autism during interactions with their parents?

## **Method**

This research is designed as a qualitative multiple-case study since the evidence and the conclusions provided through multiple-case studies are accepted as robust and powerful (Herriott & Firestone, 1983; Yin, 2014). The first author (she), previously, worked as a data coder of parent-child interaction videos in the larger intervention study, Joint Attention Mediated Learning (JAML, the details were explained in the intervention context) from which the data for the current study were drawn. For the current study, she selected the interaction videos through observation (see the details in the sampling procedure). Therefore, the first author's role can be described as a non-participatory observer and coder. The second author was the principal investigator in the larger intervention study and helped the first author in formulating research questions, accessing the data, and thematic conclusions after the coding procedure was completed, and providing guidance throughout the research. We drew upon thematic analysis as an analytical framework (Braun & Clarke, 2006; O'Reilly & Kiyimba, 2015). Human subject protections were assured through the Internal Review Board informed consent process.

### ***Intervention Context***

The data (see the details in Data Sources) used in the current study were drawn from Joint Attention Mediated Learning (JAML), an intervention study that focuses on promoting social communication in toddlers with autism (Schertz & Horn, 2018). Therefore, as contextual background, a brief description of this large-scale study was provided. This parent-mediated play-based intervention places a particular emphasis on "(1) child looks at the parent's face, (2) reciprocal back-and-forth turn-taking interaction, and (3) joint attention, a three-way interaction that involves two people and an object" (Schertz & Horn, 2018, pp. 22-23). The parents participating in the JAML study, in their primary role as responsive caregivers, were supported in interacting with their toddlers in focused play and daily routines using mediating learning (ML) principles. These principles were focusing, organizing, and planning, giving meaning, encouraging, and expanding. The ICs were the professionals who guided parents at weekly home visit sessions to identify parent-child interaction activities (focused on

current outcomes) to carry out during the week—activities in which parents incorporate ML principles to promote their toddlers' active engagement in the learning process. ICs provided written, verbal, and video examples for parents to conceptualize both the *mediated learning process* and the currently targeted *social communication outcome*. Rather than presented as prescribed strategies, the examples were used to demonstrate how other parents of toddlers with autism had adapted play opportunities to promote the currently targeted outcome. Parents were encouraged to adapt those examples by relying on their own creativity, values, and interests to promote their self-efficacy.

### ***Participants***

***Sampling procedure.*** The first author selected three toddlers with autism and their parents using purposive sampling (Brantlinger, Jimenez, Klingner, Pugach, & Richardson 2005; Patton, 2002) from a larger pool of twenty-three participants in an intervention study, Joint Attention Mediated Learning (JAML). Purposive sampling is commonly used in qualitative research to serve specific purposes, one of which is to select information-rich cases to achieve a depth of understanding (Patton, 2002). First, the first author watched one interaction video, to which she had access, of all participants (a total of twenty-three interaction videos) to identify three parent-toddler dyads. She decided on the toddlers who were showing examples of eye contact and smiles at their mothers, communicating nonverbally using their body movements (e.g., walking toward the mother, reaching toward the object, bringing, and showing objects in their hands to the mother), and pointing either by patting or isolating the index finger. She also made choices for the videos based on the number and types of engagement (e.g., social versus instrumental) that toddlers enrolled in, and activities (e.g., physical activities such as spinning in the air, activities with toys or objects) used in these videos for, possibly, having diversity in the toddlers' and parents' observed actions during their interactions.

Second, the first author had access to seven videos per parent-toddler dyad (a total of three parent-toddler dyads) that she selected. Then she observed all seven videos for each selected dyad (a total of twenty-one videos, ten minutes each, resulting in two hundred and ten minutes) to have multiple examples for each parent-toddler dyad. She chose three interaction videos for each parent-toddler dyad (a total of nine videos, ten minutes each, resulting in ninety minutes). She looked for examples of social engagement that she believed could yield rich data for analysis (e.g., some social engagement was initiated either by the mother or by the toddler, some about a toy, some about pictures in a book, some in which the mother or toddler initiated in a certain way such as looks, words, and touching, and some in which the same mother or toddler initiated differently). She would not choose the videos if parents were sitting next to the toddlers and watching their toddlers play quietly. Similarly, if the toddler was running all over the room and the mother appeared to be waiting for the child to return, she sought an example with richer interaction.

***Characteristics of Participants.*** The following descriptions provide the toddlers' and then parents' characteristics (see Table 2) using "Initial Parent Interview" records (no audio but written summaries only) collected prior to the intervention. All selected toddlers' autism diagnoses were confirmed at the time of recruitment for the larger JAML study using ADOS-2 Toddler Version and Childhood Autism Rating Scales (CARS).

**Table 2.** Summary of Participants' Characteristics

Pseudonyms Parent(P)/ Toddler(T)	Toddler Age/ Months	Parent Age	Partner Status	Employment Status	Parent Education	Family Income (\$)/Year	No. Siblings	Parent/ Toddler Gender
Amelia(P1) & Adam(T1)	28,31,33	39	Married	Full Time	Bachelor's Degree	Over 100,000	2	F/M
Bella(P2) & Benjamin (T2)	29,30,33	29	Lives w/ Partner	Full Time	Some College	Around 45,000	0	F/M
Camila (P3) & Caitlyn (T3)	24,27,28	49	Single, Never Married	Not Employed	Graduate Degree	Less Than 11,000	0	F/F

Adam (T1) is a triplet. In the three selected videos, Adam was 28, 31, and 33 months old. According to his mother Amelia (P1), objects in Adam's physical environment capture his attention more than people around him. Adam communicates nonverbally through body movements (e.g., walking towards the desired object and reaching with his hands) but does not request anything with words. He generally makes little eye contact, but he exhibits better eye contact in play. Amelia uses physical activities to interact with him. For example, he loves playing chase as well as being flipped and then caught, and this cycle makes him laugh. However, his mother wants both quiet one-on-one play and reciprocal social play with Adam. Amelia desires to connect with her son verbally but he currently does not communicate with words.

Benjamin (T2) is an only child. In the three selected videos, Benjamin was 29, 30, and 33 months old. He communicates with his mother Bella (T2) nonverbally by showing things with patting but not by pointing with his index finger. When he shows an object to his mother, there are no coordinated looks between the object and his mother. Benjamin seems frustrated when he cannot communicate; therefore, Bella has to make guesses about what he wants. Benjamin prefers to play with his toys alone most of the time, and he does not seek out his mother for play.

Caitlyn (T3) is an only child. In the selected videos, Caitlyn was 24, 27, and 28 months old. Camila, Caitlyn's mother (P3), describes her as a pleasant child who communicates non-verbally with her through actions, such as bringing the clothes that Caitlyn would like to wear, pointing to objects, using a little body language, and leading Camila towards desired objects. Caitlyn has strong sensory and repetitive interests, and she likes playing alone, cuddling, bathing before bedtime, and being in the pool, where she smiles a little. Additional participant descriptors are summarized in Table 2.

Amelia (P1), the mother of Adam, was a 39-year-old Caucasian at the time that the selected video was recorded. She is married and has two children in addition to Adam. None of these siblings were diagnosed with autism. Amelia has a bachelor's degree and works full-time. Bella (P2), the mother of Benjamin, was a 29-year-old Caucasian at the time that the selected video was recorded. She is not married but living with a partner, and Benjamin is the only child. Two extended family members (second cousins) were diagnosed with autism. Bella has college education to a certain extent but has not completed a degree and works full-time. Camila (P3), the mother of Caitlyn, was a 49-year-old Caucasian when the selected video was recorded. She is single and has never married. Caitlyn is the only child and no other family members have been diagnosed with autism. Camila holds a graduate degree and used to work as a medical professional, but was not employed when the video was recorded.

#### **Data Sources**

The primary data for this project were parent-toddler interaction videos (a total of nine parent-toddler interaction videos, ten minutes each, thirty minutes for each dyad, and a total of ninety minutes). Secondary data were intervention coordinator (IC) weekly session notes and weekly video reflection notes that correspond to the interaction videos and are available in written forms. Each data source is described in the following.



**Parent-toddler interaction videos.** Using the criteria explained in the above section on sampling, the first author chose three videos for each mother-toddler dyad to analyze. This made a total of nine parent-toddler interaction videos (thirty minutes for each dyad and a total of ninety minutes).

**Intervention coordinator (IC)'s weekly session notes.** In the larger JAML study, the people who visited the homes of research participants were called "Intervention Coordinators" or ICs. The ICs produced weekly session notes (see Appendix A on p. 30). These notes contained information about parents' involvement in the parent-toddler interaction video sessions. ICs rated the level of parent engagement during these parent-child interactions. In addition, ICs wrote notes on positive factors observed, signs of stress observed, and situational factors that might have affected parent or child engagement. The first author was able to have another perspective on parents' and children's social engagement with these notes, and such a description provided by another perspective added to her observations from the parent-toddler interaction videos and also enhanced her understanding of the context while she analyzed the parent-child videos.

**Weekly video reflection notes.** Part of the JAML research and intervention design was to have all the parents, each week, first watch the ten-minute parent-toddler videos and then have the ICs write the notes based on the parents' verbal reflections. The results are weekly video reflection notes (see Appendix B on p. 31). It is the secondary data source analyzed for this study. In these reflections, ICs took notes on the child's performance in the video regarding how well the child showed the targeted outcome of the week (e.g., focusing on faces, turn-taking, and joint attention) and responded to the parent's use of mediated learning principles. ICs also wrote comments regarding what worked best for promoting the weekly targeted outcome. With these reflection notes, the first author was able to have each parent's perspective on their children's social engagement as performed in the video, and such a description could add to her observations from the parent-child interaction videos.

### **Data Analysis**

The first author and a graduate student experienced in qualitative inquiry implemented thematic analysis (Braun & Clarke, 2006; Boyatzis, 1998; Saldana, 2016) to analyze the data. The following includes the details of the data analysis procedure.

**Transcription.** The transcriber was a graduate student (different from the graduate student who coded the primary and secondary data). She was particularly experienced in doing transcription in qualitative inquiry and transcribed all the parent-child interaction videos. The video transcriptions did not only include spoken words because the participating toddlers were at the preverbal level and their number of word utterances was limited. The transcriptions also included contextual interpretations, such as sounds produced by the toddlers and parents, body movements and postures of toddlers and parents, and the directions of looks (both child and parent). Otherwise, if the video transcriptions contained only word utterances by the participants, they could not help forming an accurate interpretation of social engagement between toddlers with autism and their parents. In the following transcription examples, two different contextual interpretations were included: *Parent starts to sing a song: "Ring around the Rosie, pockets full of posies"* (smiles, lean towards her child, when the child is walking around her as if she is trying to catch the child) and *Parent starts to sing a song, "Ring around the Rosie, pockets full of posies"* (no smiling or laughing, looking somewhere out the window). In the first example, the mother is paying attention to her child while in the second example she may appear more interested in a view/something out the window.

**Coding procedure.** The first author and a graduate student experienced in qualitative inquiry (different from the transcriber) did "open" coding to extract the meaning of each communicative action (Saldana, 2013; Yin, 2016). The only exception was applying the definitions of social and instrumental engagement to the transcribed data (see Table 3 on p. 10-11). We started with low-level coding, which was close to the primary record, objective in the sense that we assume anyone who looks at the data will have the same interpretation. Some examples of low-level coding for toddler actions included *"Toddler does not respond to parent"* or *"Toddler stays silent"* (When a child continues to play with the

drumsticks between his hands and his mother repeatedly says, “Play like this! Play like this!” while holding his hands and making him play the drum with those sticks), or “*Toddler smiles to his parent*” (when a child smiled to his mother while the mother was swinging the child from side to side in her arms). Some examples of low-level coding for parent actions included “*Parent insists on toddler to play with her choice*” (when a child continued to lean more on the book every time her parent presents a musical instrument (e.g., xylophone) to get the child’s attention), “*Parent tells toddler what to do verbally*” or “*Parent makes toddler do something manually*” (When a child continues to play with the drumsticks between his hands and his mother repetitively tells, “Play like this! Play like this!” while holding his hands and making him play the drum with the sticks).

**Table 3.** Codes and Themes

Low-Level Coding	High-Level Coding	Themes
	Social Engagement	
P smiles at T		
P asks a question to elicit a social response		
P offers a toy/object/activity		
P sings a nursery rhyme/song		
P bounces T on her legs and looks at T	Parent social initiation	Initiating and Responding to Actions as Facilitators of Social Engagement
P swings T in her arms and looks at T’s face		
P comments on T’s action		
P calls T while smiling		
P places a piece of cloth on T’s face		
P imitates T’s actions/words/sounds		
T shows something to P		
T gives something to P while looking at P		
T names objects at hand		
T points to something on the puzzle board	Toddler social initiation	b. Parents as initiators by making suggestions to toddlers: T1-P1, T2-P2, T3-P3 and IC represented
T comments on the object at hand		
T looks at P’s face		
T approaches and then smiles at P		
T starts a “peek-a-boo” play		
P smiles at T in response to T’s smile	Parent social response	c. Toddlers as initiators by showing their interests to parents: T2-P2, T3-P3, and IC represented
P makes animated sounds in response to T		
P looks at T in response to T’s look		
P accepts T’s offer by using body parts		
T sings in response to P’s singing		
T giggles while sitting on P’s lap	Toddler social response	
T laughs in response to P’s laughs		
T looks back at P’s face		
T responds to P verbally		
T imitates P’s sounds/words/actions		

**Table 3.** Continued

Low-Level Coding	High-Level Coding	Themes
	Instrumental Engagement	
P asks questions repetitively P insists on T playing with her choice(s) P makes the toddler do something manually P tells the child what to do verbally	Parent giving directions	
T answers to repetitive questions of P T lets P hold his hands T lets P make moves using his body	Toddler following directions	Directive Actions Not Resulting in Meaningful Social Engagement:
T not looking at P T not turning towards P T stops responding to P's repetitive questions T throws the toy/object on the floor	Toddler not following directions	P1-T1, P2-T2, P3-T3, and IC represented
T moves away from P T examines the toy/object on his own P watches T's actions silently	Unengaged	
T reaches for the object T cries for the object T whines for the object T runs after the mom while crying T repeats verbally what she wants T signs "more" by hands T leans on the object T pulls P's hand and places it on the toy	Toddler requesting	Requesting Actions Not Resulting in Meaningful Social Engagement:
P opens/reads the book that T requests P puts her choice of toy aside and uses T's preference P places T's book on the table P lets T get the desired object	Parent accepting requests	T1-P1, T2-P2, T3-P3, and IC represented
P places the object higher than T's reach P moves away with the object P says verbally "No, No, No" or "No more of that toy"	Parent not accepting requests	

Notes: P(Parent), P1(Amelia), P2(Bella), P3(Camila) & T (Toddler), T1 (Adam), T2 (Benjamin), T3 (Caitlyn) & IC (intervention coordinator).

High-level coding requires more abstraction and gives an understanding of background claims (underlying intent or assumptions) within a communicative act. Some examples of high-level coding included "Toddler social initiation" (When the toddler reached into a paper bag and pulled out a finger puppet, said: "A bah! A bah!" while looking at the mother's face) or "Parent social response" (When the mother replied: "A bat!" smiled to her toddler). Other examples of high-level coding included giving directions and following directions for the following interaction: "The mother asked, "Tell mommy what's this one?" holding one finger out. The toddler said, "A gah." The mother asked again, "What's this one?" The toddler said, "A vim-mah!" The mother asked, "What's this one?" The toddler said, "A bun-kin!" Another example of high-level coding included Toddler requesting and Parent not accepting request for the following interaction: "The toddler reached out to grasp the toy while saying, "Ah dah ah dah," which sounded like "I want, I want." The mother said, "Oh oh, no no."

The first author moved on to coding the secondary data: *IC weekly session notes* and *weekly video reflection notes* which are available in written form. For example, the codes “*Parent social initiation*” and “*Toddler social response*” were applied to the following scene in the parent-child interaction video: “Mother sings: “Ring around the Rosie, pockets full of posies. Ashes Ashes” (smiles, leaning towards her child as if trying to catch the child). The child is walking around her accompanied by the smile at the mother’s face.” In the IC weekly session notes that correspond to this parent-toddler interaction video, the IC noted the parent’s level of engagement (e.g., mother and toddler were very engaged) and positive signs observed (e.g., singing a song was pretty good). We could be able to apply the following low- and high-level codes “*parent sings a nursery rhyme*,” “*toddler sings in response to parent’s singing*,” “*parent social initiation*,” and “*toddler’s social response*,” to IC weekly session notes. In the weekly video reflection notes that correspond to the above parent-toddler interaction video, the parent wrote what worked best for engagement (e.g., nursery rhyme “Ring Around the Rosy”) and noted how well the toddler did in the video (e.g., He did well on looking at faces during singing activity). Therefore, secondary data added to our understanding of observed social engagement examples in the interaction videos and we could also be able to apply the following low- and high-level codes “*parent sings a nursery rhyme*,” “*parent social initiation*,” “*toddler looks at parent face*,” “*toddler’s social response*,” to weekly video reflection notes.

Secondary data sources also contributed to our understanding of observed instrumental engagement examples in the interaction videos. For example, the codes “*Parent makes toddler do something manually*,” “*Parent giving directions*,” “*Toddler examines the object on his own*,” and “*Toddler not following directions*” were applied to the following scene in the parent-child interaction video: Bella said, “Do together!” Bella added, “Go like this,” while hitting her closed fists together to imitate using cymbals. She held Benjamin’s hands in her own as he grasped the cymbals. Once she removed her hands, he continued to examine them in his hands. Bella said, “You are a little distracted today.” In the IC weekly session notes that correspond to this parent-toddler interaction video, IC noted as “Child was not cooperative, and it was harder to engage than usual” or “Toddler not feeling well, had a rough day.” We could be able to apply a code such as “*Toddler unengaged*” to IC notes. Furthermore, in the corresponding weekly video reflection notes, the parent noted the interesting point in today’s video (e.g., He wanted to play alone). Therefore, we could be able to apply the following codes as “*Toddler does not look at parent*” and “*Toddler does not follow directions*” to weekly reflection notes.

### ***Creation of the Vignettes***

After the coding procedure was completed, the process of creating the vignettes occurred in multi-steps. First, the first author highlighted all interaction moments in the video transcriptions in which initiating, responding, directive and requesting actions were observed. Second, we separated all these moments and placed them in a Word document. Third, we eliminated details that were irrelevant to the toddlers’ and parents’ engagement (e.g., There was a TV set in the corner of the room.). Finally, we created a total of 32 vignettes and used 15 of them in the findings as examples of evidence for explaining and interpreting how the aforementioned actions either resulted in or did not result in meaningful social engagement.

### ***Validation Strategies***

We referred to Brantlinger et al. (2005) quality indicators in this study for two reasons: one is to provide transparency in the meaning of concepts (e.g., particularizability) used in this section and the other is that this research is also a qualitative multiple-case study in special education. We used data triangulation, verifying the information through different data sources (parent-toddler interaction videos and corresponding secondary data) and perspectives (the researchers’, parents’, and IC’s perspectives), for establishing credibility in qualitative research (Brantlinger et al., 2005; Denzin, 1989; Lincoln & Guba, 1985). Second, all the codes developed from the raw data by another independent coder were discussed in peer debriefing meetings. Finally, an expert in qualitative research gave her feedback on coding, theme(s) development and confirmed our conclusive findings. The inclusion of multiple investigators and the resolution of coding differences provided a form of interobserver reliability for

the data analysis and thematic conclusions. *Particularizability* was also highlighted by documenting each toddler with autism in sufficient detail to allow readers to apply the principles to their situations (Brantlinger et al., 2005). Although validity procedures were strongly applied, the findings are specific to the cases and limited by the number and the length of the videos selected. Another limitation relates to using interaction videos when the participants were in the intervention because no interaction videos from the follow-up period, when the intervention was over, were used in this study.

## Results

This study is intended to examine what facilitates and hinders social engagement in toddlers with autism during their interactions with their parents. A qualitative multiple-case study was employed to comprehensively investigate social engagement between toddlers and their mothers. After conducting the qualitative data analysis iteratively, two themes emerged. The first theme, *initiating and responding actions as facilitators of social engagement*, answered research question one (What facilitates social engagement in toddlers when they interact with their parents?). The second theme, *directive and requesting actions not resulting in meaningful social engagement*, answered research question two (What hinders social engagement in toddlers when they interact with their parents?). Each theme is presented with examples and interpretations of the vignettes to explain how the sequences of these discrete actions (See Table 4 on pp. 13-16) performed by both toddlers and mothers resulted and did not result in meaningful social engagement.

**Table 4.** Actions of Parents and Toddlers Resulting and Not Resulting in Meaningful Social Engagement

Examples of Vignettes/ Actions of Parents (P) and Toddlers (T)	Initiator-Type of Initiation	Responder- Type of Response
<b>Amelia-Adam</b>		
[Whirling helicopters]		
P1 asks a question _ T1 verbally responds to P1	Parent-Social	Toddler-Social
P1 asks another question related to the toy helicopter_ T1 verbally responds, smiles, and looks at P1's face.	Parent-Social	Toddler-Social
P1 imitates T1's actions _ T1 looks at the toy helicopter, smiles, and says "Yaa Yoo"	Parent-Social	Toddler-Social
[You need to look at me]		
P1 tells T1 what to do verbally "Look at here" _ T1 neither answers nor turns to P1	Parent-Giving directions	Toddler-Unengaged
P1 tells T1 what to do verbally "Look at here" _ T1 neither answers nor turns to P1	Parent-Giving directions	Toddler-Unengaged
[I want you to pay attention]		
P1 asks a question _T1 does not respond	Parent-Social	Toddler-Unengaged
P1 asks the same question _T1 does not respond	Parent-Giving directions	Toddler-Unengaged
P1 asks the same question _T1 does not respond	Parent-Giving directions	Toddler-Unengaged
P1 asks the same question _T1 does not respond	Parent-Giving directions	Toddler-Unengaged
[Turn the handle mother!]		
T1 pulls P1's hand places it on the handle of the toy_P1 turns the handle	Toddler-Requesting	Parent-Accepting Request
T1 smiles and looks at P1_ P1 smiles back T1	Toddler-Social	Parent-Social

**Table 4.** Continued

<b>Examples of Vignettes/ Actions of Parents (P) and Toddlers (T)</b>	<b>Initiator-Type of Initiation</b>	<b>Responder- Type of Response</b>
<b>Bella-Benjamin</b>		
[Escaping with drumstick] P2 smiles at T2 and calls him verbally _ T2 smiles and turns to his mother.	Parent-Social	Toddler-Social
P2 starts calling him again and smiles _ T2 sat on a couch, turns to P2, and smiles at her.	Parent-Social	Toddler-Social
[Mumbling "Ring around the Rosie"] P2 starts singing "Ring around the Rosie" _ T2 starts running around P2	Parent-Social	Toddler-Social
P2 continues to sing and comments on T2's action _ T2 smiles and looks at P2	Parent-Social	Toddler-Social
P2 gets T2 _ T2 sits on P2's lap and giggles	Parent-Social	Toddler-Social
[Here is a piece of cloth for your face] P2 places a piece of cloth on T2's face _ T2 takes the cloth off, smiles at P2, and laughs	Parent-Social	Toddler-Social
P2 places the cloth back to T2's face _ T2 takes the cloth off, looks at P2 face, and makes a sound "Heee"	Parent-Social	Toddler-Social
[Do you want to move in the air?] P2 holds T2 in arms and looks at T2 _ T2 smiles to P2	Parent-Social	Toddler-Social
P2 asks a question and spins T2 holding in arms _ T2 responds verbally and smiles at P2	Parent-Social	Toddler-Social
P2 starts to swing T2 side to side _ T2 laughs	Parent-Social	Toddler-Social
[I want to play a peek-a-boo] T2 approaches, smiles to P2 while holding the blanket _ P2 says "I see you" and smiles to T2	Toddler-Social	Parent-Social
T2 smiles back to P2 and starts laughing _ P2 starts laughing	Toddler-Social	Parent-Social
T2 looks at P2 on top of a chair _ P2 looks at him smiling	Toddler-Social	Parent-Social
[Play with the way I show you] P2 tells T2 what to do _ T2 examines the cymbal in his hands	Parent-Giving directions	Toddler-Unengaged
P2 tells T2 again what to do _ T2 examines the cymbal in his hands	Parent-Giving directions	Toddler-Unengaged
P2 makes T2 hit cymbals _ T2 examines the cymbal in hand	Parent-Giving directions	Toddler-Unengaged
[Play with the toy pig] P2 insists on the toy pig by placing it on T2's feet _ T2 examines the drumstick in his hands	Parent-Giving directions	Toddler-Unengaged
P2 insists on the toy pig by bouncing it in front of T2 _ T2 examines the drumsticks in his hands	Parent-Giving directions	Toddler-Unengaged

**Table 4.** Continued

<b>Examples of Vignettes/ Actions of Parents (P) and Toddlers (T)</b>	<b>Initiator-Type of Initiation</b>	<b>Responder- Type of Response</b>
[I want to get it] T2 reaches for the object at P2's hand_ P2 says "Noooo"	Toddler- Requesting	Parent-Not accepting request
T2 continues to reach for the object_ P2 says "Oh No no no" raising the toy higher than T2's reach	Toddler- Requesting	Parent-Not accepting request
T2 reaches for the toy_ P2 raises the toy to T2's face level	Toddler- Requesting	Parent-Not accepting request
T2 moves away once get the object_ P2 watches	No further initiation	No further response
[I desperately want the toy!] T2 leans toward the object_ P2 tells T2 not to touch it and raises the toy above T2's reach.	Toddler- Requesting	Parent-Not accepting request
T2 whines and leans to his side_ P2 stands up and walks away with the toy	Toddler- Requesting	Parent-Not accepting request
T2 starts to cry and runs after P2_ P2 says "No more of that toy"	Toddler- Requesting	Parent-Not accepting request
[I want to hold the cymbal] T2 reaches for the object_ P2 lowers her head down and lets T2 hold the object	Toddler- Requesting	Parent- Accepting request
T2 gets the object and then moves away_ P2 watches T2	No further initiation	No further response
<b>Camila-Caitlyn</b>		
[Listening to animal sounds] P3 describes the sound of the toy _ T3 names the sound "Nog" and looks at P3	Parent-Social	Toddler-Social
P3 repeats T3 and produces the sound of a dog _ T3 looks at P3's mouth and moves her mouth	Parent-Social	Toddler-Social
[Picking up a book] P3 comments on T3's book _ T3 lets P3 to get the book	Parent-Social	Toddler-Social
P3 opens the book _ T3 points to a picture in the book	Parent-Social	Toddler-Social
P3 names what she has pointed to, and turns the page _ T3 points to a picture in the book	Parent-Social	Toddler-Social
[Look at my finger puppets] T3 shows a puppet to P3 _ P3 asks a question about it	Toddler-Social	Parent-Social
T3 responds, looks at P3, and places the puppet on P3's finger_ P3 repeats what T3 says	Toddler-Social	Parent-Social
T3 shows another finger puppet to P3_ P3 names the puppet and makes the sounds of it	Toddler-Social	Parent-Social
T3 repeats the sound and looks at P3 _ P3 wiggles her finger with the puppet and smiles at T3	Toddler-Social	Parent-Social

**Table 4.** Continued

<b>Examples of Vignettes/ Actions of Parents (P) and Toddlers (T)</b>	<b>Initiator-Type of Initiation</b>	<b>Responder- Type of Response</b>
[Play with the xylophone] P3 insists on the xylophone _ T3 pushes the xylophone away	Parent-Giving directions	Toddler-Not following directions
P3 insists on the xylophone again_T3 pushes it off the book	Parent-Giving directions	Toddler-Not following directions
[Tell me the names of finger puppets] P3 asks a question_T3 responds to P3's question P3 repeats the same question_ T3 responds to P3's question	Parent-Social Parent-Giving directions	Toddler-Social Toddler- Following directions
P3 repeats the same question_ T3 responds to P3's question	Parent-Giving directions	Toddler- Following directions
P3 repeats the same question_ T3 responds to P3's question	Parent-Giving directions	Toddler- Following directions
P3 repeats the same question_ T3 moves away	Parent-Giving directions	Toddler- Unengaged
[Give me a response] P3 asks a question_T3 and looks at the top of a dresser	Parent-Social	Toddler- Unengaged
P3 asks the same question_ T3 and keeps looking at the dresser	Parent-Giving directions	Toddler- Unengaged
P3 asks the same question_T3 and keeps looking at the dresser	Parent-Giving directions	Toddler- Unengaged
P3 watches T3_T3 keeps looking at the top of a dresser	No further initiation	Toddler- Unengaged
[Bum Bum Mickey Mickey] T3 repeats verbally what he wants_ P3 places the book in front of Caitlyn	Toddler- Requesting	Parent- Accepting request
T3 continues to look at the book on her own_P3 watches T3	No further initiation	No further response

Notes: P(Parent), P1(Amelia), P2(Bella), P3(Camila) & T (Toddler), T1 (Adam), T2 (Benjamin), T3 (Caitlyn)



***RQ1. What facilitates Social Engagement in Toddlers with Autism during their Interactions with their Parents?***

***Theme 1: Initiating and Responding Actions as Facilitators of Social Engagement***

Initiating and responding actions refer to what parents and toddlers did that resulted in facilitating social engagement. Asking questions to elicit a social response, making animated sounds/voices, smiling at faces, laughing together, singing nursery rhymes, and verbally commenting on what the toddler did/said were observed examples of initiating and responding actions. The three mothers were observed as the initiators, taking the first steps to engage. When the parents initiated, they either used their toddlers' interests or offered something that appeared likely to be of interest to their toddlers. In circumstances when the two toddlers initiated, they showed their interest to the parents. Once a social initiation was accepted by a mother or a toddler, interacting participants continued back-and-forth responses to each other, which facilitated their social engagement. In the following, the first theme was presented in three subthemes based on the initiators: *parents acting as initiators by using toddlers' interests*, *parents acting as initiators by making suggestions to toddlers*, and *toddlers acting as initiators by showing their interests to parents* through examples and interpretations of the following vignettes.

***Parents Acting as Initiators by Using Toddlers' Interests***

***Whirling helicopters.*** Adam picked up a toy helicopter from the shelf and turned to Amelia. Amelia asked: "Oh, what's that?" Adam replied, "Sika" while looking at Amelia's face. Amelia said: "A helicopter!" and smiled and looked at Adam. She asked, "What does a helicopter do?" Adam responded, "Shoo shoo" while looking at Amelia's face, smiling at her. He then raised the helicopter above his head and made circular motions in the air, ostensibly showing how a helicopter flies in the air. Amelia repeated, "shoo, shoo," while moving her head around as if looking at an imaginary helicopter flying around her head and looking at Adam." Amelia asked, "Can a little boy fly the helicopter?" Adam looked at his mother. Adam raised the helicopter and moved it around in the air. Amelia said, "Shoo shoo." She took a doll from the carpet. Amelia then asked: "Can he get in the helicopter?" putting the doll inside while Adam held the toy helicopter, watching his mother's actions quietly.

Amelia's first question about the helicopter seemed to reflect that she focused on Adam's attention, following his interest. Amelia's focus on her toddler's choice was also observed by the intervention coordinator (IC), who noted that Amelia seemed "very flexible in playing according to Adam's preferences." Adam's associations of the movements and sounds with the toy helicopter in his hand while demonstrating to his mother seemed to reflect that Adam acknowledged his mother's presence as an interaction partner. In addition, transactional influences are observed in this example of engagement. Amelia's first question about the helicopter seemed to capture Adam's attention and he did not only verbally respond to the mother but also looked at and smiled at Amelia. Adam's association of the movements and sounds with the toy helicopter in his hand while demonstrating to his mother appeared to encourage Amelia for further responses in each turn. The first round of responses by one partner appeared to be nurturing the next round of responses by the other partner and those responses were accompanied by exchanging smiles throughout the social engagement. Even at the very end, Adam's no response to Amelia's question appeared to influence her next action so she kept silent. From the beginning to the end, the schema of their engagement continued to change and develop based on each partner's interpretation of the previous actions.

***Mumbling "Ring around the Rosie."*** Bella was sitting on the floor and Benjamin was mumbling "Ying Ying" while swaying side to side but staying where he was. They looked at each other briefly. Then Bella started singing, "Ring around the Rosie, pocket full of posies.", Benjamin started to run in a circle around Bella. As he ran in front of her, Bella leaned forward toward Benjamin, widened her eyes as if conveying excitement, and sang, "ashes, ashes all." Benjamin kept running around her. Bella said,

“Oh you’re running around” smiled, and reached out at Benjamin with both hands as if to stop him. Benjamin backed away and kept running around Bella. Bella said, “Come here, okay?” with a smile on her face. Benjamin smiled and looked at her face. Bella sang, “all fall down,” while reaching him.

Bella and Benjamin appeared to be enjoying themselves and having fun when singing, smiling at each other, and moving according to the nursery rhyme in the example of engagement narrated above. Back-and-forth dynamic and evolving actions were noticed within the social engagement between Bella and Benjamin. First, Bella might be described as a good observer because she immediately understood what Benjamin’s current interest was when she heard “Ying Ying” and saw his body movements as he was swaying from side to side. Bella appeared to be influenced by those clues and then started singing the nursery rhyme “Ring around the Rosie.” Benjamin, in turn, was responding to her by running around her and giving her a smile. In her each round of response, Bella expanded the activity (e.g., describing Benjamin’s actions, attempting to catch him when she reached the nursery rhyme’s last line, “we all fall down.”) and those are welcomed by Benjamin with his smiles, and attempts of not being caught by his mother. Overall, Bella and Benjamin’s engagement were not composed of static and isolated behaviors, but instead constantly reshaped by the actions of both partners.

*Parents Acting as Initiators by Making Suggestions to Toddlers*

*Here is a piece of cloth for your face.* Bella reached toward a piece of cloth on the couch and put it over Benjamin’s face. Benjamin took the cloth off and smiled at her. Bella laughed while facing him and then Benjamin laughed. Bella put the cloth back on Benjamin’s face and said, “Hide your face.” Benjamin took the cloth off his face again. He looked at Bella’s face, laughed, and then smiled at her. She asked, “Can I get [high] fives?” and picked up the cloth from Benjamin’s hands. Benjamin laughed.

There were many instances of Bella and Benjamin looking at each other’s faces while smiling and laughing in the interaction above. When Bella incorporated doing high fives after pulling the cloth away, it appeared as if she were encouraging Benjamin to look at her face more often. In addition, playing high fives and raising her hands in the air seemed to be expanding upon the previous experience (looking at faces), which could be celebrated by another activity. Bella encouraged Benjamin with her expressions of sounds, smiles, and laughter. She transformed “looking at faces” into a game to have fun with Benjamin. Benjamin’s responses to Bella appeared to be motivating her to continue interacting. Because Benjamin accepted her offer by pulling the cloth off his face, looking at her, smiling at her, and laughing together as if to signal, “Mother, this is fun to play, and I am enjoying what we are doing.”

*Let’s sing a song.* Amelia started singing, “Twinkle, twinkle, little star.” Adam smiled and looked at her face. Amelia continued to sing, “How I wonder what you...” and waited. Adam smiled, looked at her face, and said, “are” in a quiet tone of voice. Amelia sang, “are” by imitating his way of singing and then continued, “Up above the world so...” Adam said, “highhh” in a quiet volume as if he were whispering to Amelia. Amelia sang, “like a diamond in the...” Adam said, “sky” looking at her face.

Amelia and Adam appeared to be focusing on each other and enjoying what they sang about by taking turns while smiling at each other. The IC commented, "The song worked best for practicing looking at faces with Adam showing natural turn-taking examples." Choosing the nursery rhyme "Twinkle, Twinkle, Little Star" and expecting Adam to complete some of the lines might show that Amelia was not only aware of Adam's interest in this song, but also knew that Adam could sing it. By waiting for Adam's turn during singing, Amelia was perhaps encouraging him to participate actively in the activity. On the other hand, Adam pauses while his mother was singing and looking at her face showed that he acknowledged his mother's presence as an interaction partner.

There were also moments of interaction in which the parents initiated socially several times using the toddlers' current interests and followed the child's lead. However, these attempts guaranteed neither continuous social engagement like in the examples above nor a simple social response from the toddler. The details of such actions were explained in the following three vignettes.

***Wanting to make music.*** Benjamin took cymbals out of a metal box. Bella said, "Do both of them together!" smiling and hitting the cymbals in her hand at each other. Benjamin did not look at her but continued to examine the cymbals in his hand. Bella added: "Can you play them?" Benjamin did not answer and continued to examine his hands. Bella added: "These cymbals are round" while examining her cymbals (as if mimicking Benjamin's actions). Then Benjamin saw another object inside the metal box and reached toward it. Bella said, "You are a little distracted today."

Bella initiated socially when she modeled how to play the cymbals as if to expand Benjamin's action to transform into a meaningful activity using the cymbals in his hands. Further, she asked a question to elicit a social response perhaps encouraging him to actively participate. Finally, Bella's imitation of Benjamin's behavior and examination of the cymbals like him appeared as proof of how she focused on his interest and followed his lead. However, she could not get any responses either verbally or non-verbally. In the end, she said, "You are a little distracted today," as if to say "I give up trying to engage with you" when Benjamin reached for another musical instrument.

***Bum bum Mickey Mickey.*** Caitlyn and Camila were together next to a small table in front of the couch. Camila asked, "Can we put Mister Pumpkin and Mister Potato Head together, Caitlyn?" Caitlyn did not respond and looked at a pile of books on the table. Camila put the Potato Head toy aside and asked, "Would you like to read Mickey Mouse?" while placing the book in front of Caitlyn. Caitlyn looked at the book. Camila followed Caitlyn's interest in the book, and read a few lines but Caitlyn was silent. Camila commented on Mickey Mouse "his nose is black." Caitlyn neither looked at Camila nor responded. Camila finished reading the book, but Caitlyn was silent till the end of the book."

Reading was Caitlyn's favorite activity, which was observed multiple times across the three videos, and highlighted by her mother and the intervention coordinator; therefore, Camila did not insist on the potato head toy but instead followed Caitlyn's interest in books as if to show Caitlyn how her mother focused on her area of interest. Camila initiated socially several times (asking questioning to elicit a social response, commenting verbally on the interested item as if to expand their interaction to a different level and encourage Caitlyn to actively participate). However, none of this mother's social attempts seemed to motivate Caitlyn to make a response.

***Wearing a cowboy hat.*** Amelia and Adam were in the living room next to a shelf. Adam was trying to reach a cowboy hat. Amelia took the hat: "Oooh, What is that?" waited for a few seconds, added, "A cowboy hat" and put it into her head. Adam did not look at her. Then Amelia found another cowboy hat on the shelf and placed it on Adam's head. Adam touched the hat, but neither looked at her nor responded. Amelia asked: "What does a cowboy say?" waited for a second and added: "Yee-Haw" raising her body up and down (as if to imitate a cowboy's moves while riding a horse). Adam did not respond and turned away from Amelia.

Amelia followed Adam's interest in the cowboy hat and use it for social initiations. She modeled how to wear a hat as if to encourage him to do the same for himself. Amelia then asked a question to elicit a social response, perhaps, to give meaning to their interaction around wearing a cowboy hat by starting a conversation about what a cowboy might say. She further imitated the cowboy's actions when riding a horse to possibly get his attention. However, none of these social attempts seemed to motivate Adam to respond to Amelia and engage with her.

#### ***Toddlers Acting as Initiators by Showing their Interests to Parents***

***I want to play peek-a-boo.*** Bella put a blanket over two chairs and made a fort while Benjamin was watching her quietly. Benjamin raised the blanket and said, "Ooooooh," looked at his mother's face, opened his eyes wide as if he were excited, and then smiled. Bella smiled back at him. Benjamin dropped the blanket. Then Bella raised the blanket, peeked at Benjamin, smiled, and said, "Boop, I see yooooou!" raising the volume of her voice. Benjamin smiled at first and they started laughing together. Then Benjamin climbed on the chair, stood up, and looked at his mother, smiling. Bella was looking at him back smiling.

Bella and Benjamin seemed to be having fun during this activity, as demonstrated by their smiles and laughs together. Their joy was depicted in the IC's notes as "happily engaged." Benjamin could be considered a good observer because he watched his mother quietly until Bella finished making a fort, and then approached her as if to say, "I would like to play with you." Bella seemed to be encouraged by his action, as she responded with an increased volume and a smile as if to say, "I am happy to be with you." Benjamin appears to be actively contributing to the activity by taking initiative a second time as he climbed onto the chair and then looked at her as if to say, "I did it!" In all these exchanges, the individual response of one partner was continuously adapted based on the interpretation of the other partner's previous action. The image of their engagement was not static but instead constantly changing and developing by the influences of partners' responses to each other.

***Look at my finger puppets.*** Caitlyn showed the pumpkin puppet to Camila and looked at her. Camila asked, "What is it?" holding her hand in front of Caitlyn. Caitlyn said, "A puh" placing the puppet on one of Camila's fingers. Camila said, "A pumpkin." Caitlyn repeated, "A pun kin." Caitlyn reached into the paper bag, took another toy, leaned forward, and then put it on Camila's hand. Camila said, "A ghost. Rawwwr!" as if producing the sound of a ghost and leaning toward Caitlyn's face. Caitlyn looked at her mother and said, "a war nah-nah" as if producing the sound of a ghost and widely opening her mouth and eyes. Camila was smiling at her. Then Caitlyn reached into the bag, pulled out a toy, and said, "A bah! A bah!" opened her eyes wide to show her excitement and increased the volume of her voice while showing it to Camila. Camila said, "A bat!" Caitlyn repeated, "A bat, a bat!" and put the toy on Camila's thumb.

A sense of harmony and rhythm seemed to be present between Camila and Caitlyn in the above example of playful engagement. The dyad had the focus of finger puppets, and their actions were related in the sense that each response of one partner was interpreted by the other partner's response. For example, Camila immediately captured Caitlyn's wrong pronunciation of "Bah bah" for "bat." and did not correct Caitlyn by telling her "No, you are wrong," but instead suggested an alternative way. Camila was perhaps trying to encourage Caitlyn to say the word again. Eventually, Caitlyn was able to say "bat" in her second trial, as if to say "Mother, I heard you and now can say it properly." Caitlyn was not mechanically mimicking her mother's actions but instead interpreting them. For example, Caitlyn was pretending to be a ghost not only by making its sound but also with her body language (e.g., opening her eyes and mouth wide).

***RQ2. What Hinders Social Engagement in Toddlers with Autism during their Interactions with their Parents?***

***Theme 2: Directive and Requesting Actions not Resulting in Meaningful Social Engagement***

Directive actions refer to anything the three mothers did that resulted in controlling the toddler's actions. Asking questions repetitively, telling the toddler what to do, and manually controlling the toddler's move were the observed examples of directive actions. Requesting actions refer to verbal or nonverbal actions that the three toddlers made toward their mothers to reach their own desires (e.g., favorite toy, object, or activity). The second theme was presented through examples and interpretations of the following vignettes.

***Tell me the names of the finger puppets.*** Camila asked, "What's this one?" Caitlyn said, "A gah." Camila asked, "What's this one?" Caitlyn said, "A bah!" Caitlyn looked at Camila's hands. Camila wiggled her finger in front of Caitlyn and asked, "What's this one?" Caitlyn said, "A bun-kin!" while looking only at Camila's finger. Camila asked, "What's this one?" Caitlyn said, "A vim-mah." Camila asked, "What's this one?" Caitlyn leaned forward and then turned away from Camila." Camila said: "Come here," but Caitlyn neither responded nor looked at her mother.

Before the example of interaction described above, Camila and Caitlyn showed an example of social engagement for around three minutes using the same finger puppets. During those moments, they exchanged looks and smiled at each other, commented on and named the finger puppets, and made animal sounds; however, after a while, Camila started to ask questions repetitively. When she saw that Caitlyn was paying attention both to her and the finger puppets, Camila might have been encouraged to use the moments for teaching purposes. Therefore, she practiced naming the finger puppets. During this video segment, Camila seemed to be looking for a specific answer from Caitlyn for each question. Caitlyn, on the other hand, appeared to be interested in her mother's questions because she answered all except the last one. Caitlyn might have felt overwhelmed by many questions; therefore, she turned away from her mother as if to say "Mother, I do not want to answer any more questions. Let's stop doing this."

***You need to look at me!*** Amelia was also observed giving verbal directions to Adam. Adam was by himself next to a bookshelf, trying to reach an object. Amelia stopped him by holding his arm and said, "Come over. Look at here." Adam never turned his face toward his mother and continued to look at the bookshelf. He was trying to reach for something on the shelf. Amelia said, "Look at here!" while he was trying to reach for something on the bookshelf.

Amelia and Adam were playing together using plastic toy frogs before the brief example of interaction described above. Their social engagement around those toy frogs lasted more than three minutes, but after that, Adam suddenly stood up and started walking toward the bookshelf as if to say, "I want to do something else." Amelia's attempt to stop Adam appeared to be contrary to his choice. She was perhaps trying to say, "You cannot go anywhere. Stay with me and continue playing with the toy frogs." However, Adam seemed to be determined to reach what he saw on the shelf. He faced the shelf, not Amelia as if to say "I am now interested in an object on the shelf. No more toy frogs, please!" In the end, the two interacting partners seemed as if they were fighting for their own choices to be accepted rather than engaging in a shared interest.

*I want to get it!* Benjamin picked up a toy from the TV table. Bella took it from his hand. He wanted to grab it, but Bella said, "Nooo!" Benjamin continued to reach out to grasp the toy while saying, "Ah dah ah dah," which sounded like "I want, I want." Bella added, "Oh oh, no no" while raising the toy higher than Benjamin's reach. Benjamin started to cry." Bella and Benjamin did not seem to be enjoying what they experienced in this interaction. Benjamin requested to hold the toy and perhaps play with it according to the way he wanted. Bella accepted Benjamin's interest in the toy, but their interaction looked as if there were a battle between Bella and him.

*Play with the xylophone.* One day Camila was observed insisting on her activity choice and asking questions repetitively while interacting with Caitlyn on another day. They were in the living room. Caitlyn was sitting on top of a table where there were many books. Camila was sitting on a couch placed next to the table, facing her toddler. Camila was holding a xylophone and mallet in front of Caitlyn. Camila asked, "You like to play?" while insisting Caitlyn accept the xylophone. Camila placed the xylophone on top of the book that Caitlyn was looking at. Caitlyn said, "Nooo" and pushed the xylophone away with her hands while looking at the book. Camila handed it to her, replaced it on the book, and asked, "Would you like to play?" and tapped the xylophone with the mallet. Caitlyn pushed the xylophone away from her and off the book. Caitlyn continued to look at the book and skimmed the pages.

Caitlyn did not seem to be interested in what her mother was offering her. Her interest was in the book. She was leaning on it closely as if to say, "Mom, you need to realize that I would like to spend my time with this book, not the xylophone." Camila mentioned in the corresponding session notes that reading was Caitlyn's favorite activity. Camila might have planned alternative ways to engage with Caitlyn, such as playing with a xylophone. This could be described as an effort to organize the environment for a different activity than reading. Perhaps she was encouraging Caitlyn to widen her horizons as if to say "Caitlyn, there are more options to explore than books. For example, let's make music." However, choosing not to interact with Caitlyn's interest in the book caused tension. It looked as if Camila and Caitlyn were fighting over their choices. In the end, Camila was faced with Caitlyn's verbal and physical rejection of the activity offered.

*I want you to keep reading.* Caitlyn was moving her hands together several times at chest height. Camila said, "She is signing more today." Caitlyn continued to sign "more" with her hands and reached and pointed to a book from the pile but did not look at her mother. Caitlyn waited and signed "more" again. Camila placed the book on the table, but Caitlyn continued to look at the book on her own." In this interaction, Camila seemed to be focusing not only on her toddler's current interest in books but also on Caitlyn's sign language. Therefore, Camila appeared ready to follow Caitlyn's lead. She immediately responded to Caitlyn as if to acknowledge her presence and request to read a book. Camila's acceptance of Caitlyn's request did not result in social engagement.

*I desperately want the toy.* It was right after they were engaged in playing peek-a-boo using a piece of cloth. Benjamin was sitting on the couch and Bella was kneeling in front of him. Benjamin saw a toy next to Bella's foot. He leaned toward it. Bella stopped him and said, "We're not going to play with that toy" and raised it above him. Benjamin whined, "mmmhm," leaning over to his side. She then walked away with the toy. Benjamin ran after Bella while crying. Bella said, "No more of that toy!" Benjamin cried louder.

Benjamin's desire to play with the toy already appeared to be creating tension with his mother before the example of interaction described above. However, Bella was able to direct his attention to a piece of cloth by placing it on his face. They were both involved in an interaction where they looked and smiled at each other, and they sometimes laughed together. However, when Benjamin requested the toy again as if to say "Mother, I still want to play with that toy!", Bella stopped following her child's lead. Her focus shifted from sharing an experience to preventing Benjamin from reaching the toy.

Benjamin, on the other hand, seemed to concentrate only on getting the toy as if to say, "I am going to win this battle." Bella's reactions to Benjamin such as holding the toy above his reach, leaving him, and even hiding the toy appeared to encourage Benjamin to cry harder and louder to get his wish. In the end, their interaction slowly seemed to transform into a power struggle in which each participant insisted only on their personal desires.

In one example of interaction the mother's (Amelia) acceptance of the toddler's (Adam) request developed into a meaningful social engagement (Amelia was holding the toy with a turning crank on the side. Adam pulled Amelia's hand, places it on the handle, and waited without a look at his mother. Then Amelia turned the handle on the toy. It played music and a monkey popped out of the toy. Adam jerked and smiled at Amelia. Amelia smiled while looking at Adam and said, "Bye monkey," then closed the top of the toy together with Adam). This brief example of interaction, in which a form of instrumental engagement was initially observed, could transform into a meaningful social engagement. Adam first requested, and Amelia's acceptance of his request and it being followed by the monkey's popping out of the toy seemed to encourage Adam to smile at his mother. Amelia also appeared to be motivated by Adam's reaction and expanded their interaction by verbally commenting on the shared object as if to say, "I am with you Adam, and let's say 'Bye' to the monkey."

### Discussion

The current study investigated the circumstances that facilitated and hindered social purposes of engagement between the toddlers with autism and their parents. The findings are limited by the cases selected for this study decided by the first author's judgment. These findings are also interpretive despite the strong application of validity procedures. In addition, autism as a broad heterogeneous group, the findings are specific to the selected autism cases for the study.

The length of the interaction videos can be another limitation as the first author could watch engagement examples within a short time frame. All the examples of social engagement between a toddler with autism and a mother cannot be represented in ten-minute sample of interaction videos. Besides interaction videos from the intervention phase only were selected and the videos recorded during the follow-up and no-intervention phases were not used in the current study. In addition, some of the examples of actions that did not result into social purposes of engagement might be due to unforeseen circumstances such as having just woken up or transitioning from holiday routines to home routines. In such cases, although the child's actions might seem as naughty or uncooperative, those scenes could be unique to the specific day and time of the videos that were shot. Therefore, observed actions may not always within the parent-toddler dyad's interaction profile.

#### *Relationship with the Existing Literature*

Social initiating and social responding actions performed by the three toddlers with autism and their mothers were noticed to be affecting each other. Mothers' social initiating actions influenced toddlers' social responding actions and then children's social responding actions influenced mothers' further response actions. In other words, one of the partners' actions was found to be associated with the other's response in the state of engagement, which is in accord with other studies' findings (e.g., Schertz, Call-Cummings et al., 2018; Uzonyi et al., 2021). In the current study, both the three toddlers' and their mothers' back-and-forth social actions appeared to nurture their state of engagement. That is, rather than mechanically mimicking each other's actions each partner is observed adding more to his/her responses based on the previous response of the other partner (e.g., adding gestures and mimics together with a verbal answer). Rogoff, Paradise, Arauz, Correa-Chavez, and Angelillo (2003) also supported this finding that engagement occurs in transactional exchanges in which interacting participants constantly influence each other's actions.

The three mothers took the first steps to start an interaction in two ways: using the toddlers' interests and making suggestions to the toddlers that may likely interest them. Parents first paid attention to their young children's non-social interests (e.g., a book or a toy) and then transformed those into social realms. Some previous studies (Vismara & Lyons, 2007; Schertz, Call-Cummings et al., 2018) also supported this finding as they emphasized building social engagement with young children upon their existing interests. These toddlers possibly had fun when interacting for social means (e.g., laughing together or smiling at each other when a monkey pops out of a toy box) as they might have when engaged with their non-social interests (e.g., having fun seeing a monkey popping out the toy box alone). This gave a sense that the toddlers acted of their free will, presumably on social motivation, rather than on a prescribed expectation. Thus, social motivation in toddlers with autism can be investigated across different social occasions with people around them. Qualitative examinations of circumstances promoting social motivation (e.g., having fun) rather than non-social motivation (e.g., receiving a favorite snack or toy) can illuminate ways to maximize social engagement in young children with autism. Further studies with longitudinal designs, can explore relationship, if any, between social motivation in toddlers with autism and their future competence within situations requiring social engagement.

In some earlier inquiries (Duchan, 1983; Geils & Knoetze, 2008) concentrating on interactions between parents and young children on the autism spectrum have found that repetitive questionings of adults ended by the child's withdrawal in the forms of physical hide and giving no response. Likewise, in this study, the participating mothers' repetitive and directive questions (e.g., What is this? What is that?) resulted in neither a response nor a form of social engagement. In such cases, those mothers' frequency of questionings increased, another finding which was in alignment with the findings of the two earlier studies (Duchan, 1983; Geils & Knoetze, 2008). The participating mothers were observed to be insisting on their choices to be accepted by the toddlers rather than following their children's leads or interests. Thus, sometimes these communication partners' interactions turned into scenes of small battles in which mothers' insistence resulted in the child's throwing the object on the floor as if to say 'Mother I am not going to play with your choice.'

This study found similar results with the related literature focusing on factors promoting social engagement between young children with autism and their parents (Campbell et al., 2016; Arslan & Diken 2020; Diken & Mahoney, 2013; Oğuz & Sönmez, 2018; Patterson et al., 2014; Pierucci, 2016; Schertz, Call-Cummings et al., 2018; Töret et al., 2015). Some found that parents' actions, such as commenting verbally on the child's interest, suggesting play activities, and following the child's lead, which was defined as responsiveness, helped increase the child's playful and social-communicative actions (i.e., Campbell et al., 2016; Pierucci, 2016). Likewise, in the current study, social initiations such as asking questions to elicit a social response or verbal commenting on the child's interest and social responses such as smiling in response to their child's smile performed by the parents supported social engagement between two communication partners.

In previous qualitative studies focusing on engagement between toddlers with autism and parents, many have used standardized measures or rating scales in evaluating social engagement occurring between these participants (Campbell et al., 2016; Patterson et al., 2014; Pierucci, 2016). Observed social purposes of engagement between a parent and a young child can be broader than the descriptions offered in instruments only. It is possible to miss some examples of social engagement if relied on a single tool with a perception of social engagement as a concept that either exists or not. Furthermore, these studies did not look at the sequence of actions between toddlers and their parents during engagement but instead coded each communicative partner's actions at different times although the related literature argues that performed actions of one partner were influenced by the other partner's previous responses during interaction (Sameroff, 2009; Schertz, Call-Cummings et al., 2018; Uzonyi et al., 2021). Therefore, the current study adds to the body of knowledge by the observational depiction of discrete social initiation and response behaviors sequences of both toddlers and mothers within engagement. This helped to identify non-verbal details such as body language (gestures [e.g., moving



the body up and down] and mimics [e.g., eyes wide open, smile]) that could be possible to miss if relied only on a single instrument. For example, Adam responded to his mother's social initiation via a demonstration that involved moving the helicopter in circular moves above his head with a look and smile at his mother. In response to Adam, his mother moved her head in circular motion accompanied by a look at Adam. These interdependent actions of both partners cannot be caught by using predetermined responses within an instrument. Uzonyi et al. (2021) reported this point that analyzing engagement through instruments only may lead to missing some possible non-verbal cues in minimally verbal children. Therefore, observational depiction of actions becomes a necessity, especially for young children with autism with limited verbal ability.

### *Suggestions for Practice*

Some suggestions are possible to make in supporting social engagement in toddlers with autism and parents' competence to promote social learning in their young children. First, exchanges of social experiences can be promoted through encouraging such early intervention practices. For example, parents' verbal (e.g., commenting on the toddler's actions) and non-verbal (e.g., laughing, making animated voices to attract the toddler's attention) ways of active contributions, rather than passively following the toddler's lead or observing the toddler by sitting aside, can possibly cultivate social engagement between a young child and a parent. In addition, in the related literature (Diken & Mahoney, 2013; Oğuz & Sönmez, 2018; Töret et al., 2015), rather than approaching young children with autism by achieving success, teaching, and controlling purposes, active contribution by being responsive has been underlined as effective interaction styles for parents that promote social engagement with their children with autism.

In all observed moments of engagement for social purposes, the parents constructed social engagement around interests of their children along with meaningful and age-appropriate activities in which each participant showed signs of pleasure such as smiling and laughing together. One implication can be supporting parents to use toddlers' choices rather than forcing toddlers to comply with their choices. Another implication may be offering meaningful activities for toddlers rather than presenting teaching-oriented didactic experiences. Furthermore, parents can be encouraged to promote a sense of joy during their interactions with toddlers as some indicators for social engagement were the signs of pleasure such as laughing together. Although one driving force in building social engagement was using toddlers' interests, those were observed to change from one time to another such as playing a peek-a-boo game with their own hands and playing a chasing game one minute later. One implication of this finding can be reminding parents to embrace flexibility when moving from one preference to another of a toddler in order to maintain social engagement (Crawford & Weber, 2016). Being flexible toward such changes can help parents to preserve social engagement as the reasons for those changes may be unique to the specific conditions of the day and time (e.g., just waking up from a nap).

Speaking of the toddlers' areas of interest as the mediums to initiate and continue the interaction, one implication can be identifying and making use of toddlers' preferences to foster young children with autism for engaging with social purposes rather than instrumental purposes as these children on autism spectrum have a tendency to engage with their immediate surroundings mostly via instrumental purposes (Klin, Lin, Gorrindo, Ramsay, & Jones, 2009; Shic, Bradshaw, Klin, Scassellati, & Chawarska, 2011). Thus, rather than challenges and deficits, building meaningful and playful activities for toddlers upon their existing knowledge and interest areas, can better motivate these children to concentrate on social aspect of their environments. Preparing activities to foster social aspect of engagement can inspire these young children to start and maintain for social purposes within engagement because they may find intrinsic value in such exchanges (Vismara & Lyons, 2007).

### ***Suggestions for Future Research***

Transactional exchanges of experiences were observed in socially engaged moments between the three toddlers with autism and their parents all of whom were noticed as active participants. Related to this finding one suggestion can be concentrating on practices that support active involvement of both young children and their mothers while interacting. For example, concrete examples of what constitutes 'active involvement' can be provided to parents for their use during interactions with toddlers. In order to cultivate transactional exchanges of experiences between toddlers with autism and their mothers, future studies can zoom in ways to enhance both the quality and quantity of active participation as part of daily routines. Involving fathers can be a way to foster active participation of very young children while interacting with their parents. In the related literature (Arslan & Diken, 2020; Elder, 2018; Flippin & Crais, 2011; Vismara & Rogers, 2018) interaction styles of mothers and fathers were observed as different while engaging with their children. For example, while mothers focused on verbal aspects of interactions fathers used physical movements in symbolic plays with their children (Vismara & Rogers, 2018). Social initiating and social responding actions performed by fathers can enrich examples of social purposes engagement noted down in mother-child dyads. Similarities and differences in father-toddler and mother-toddler dyads with respect to their actions resulting into social engagement can be investigated.

Building the interaction around the child's prior knowledge was observed to be associated with having social purposes rather than instrumental purposes of engagement. This finding may be due to having fun or joy experienced by toddlers on the autism spectrum when interacting with parents. Thus, the concept of social motivation can be a next step to examine in toddlers with autism. For example, qualitative examination of circumstances that promote social motivation (e.g., having pleasure or fun) rather than non-social motivation (e.g., obtaining a favorite object) may unleash/uncover opportunities maximizing social engagement in these young children with autism. In addition, longitudinal studies can explore possible relationships, if there is any, between social motivation in toddlers with autism and their competence in future socially engaged moments. Such an investigation may increase our awareness on conditions influencing social motivation while a parent and toddler with autism are interacting can alter by time or not.

### **Conclusion**

The social engagement occurred within exchanges of social initiating and responding actions between the three toddlers with autism and their mothers. Those socially engaged moments were first built upon the toddlers' individual interests but maintained only by reciprocal back-and-forth responses from both mothers and toddlers. This finding revealed that social, rather than instrumental, engagement may lead, possibly, to a sense of joy in these children while interacting with their mothers as that joy was reflected in their smiles and laughter. One further approach related to this finding may be concentrating on the child's social motivation (e.g., having fun, joy, or pleasure), rather than non-social motivation (e.g., receiving a favorite toy or snack) while interacting. Such an approach can be a promising avenue for optimally encouraging engagement for social purposes in young children with autism.

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## APPENDIX A

## An Example of Intervention Coordinator (IC) Weekly Session Notes

**IC Weekly Session Notes**

**Instructions:** Complete on local computer after session. Upload to server within 72 hours. Retain digital copy locally.

**JAMLID:** 1031

**Session date:** 04-14-2014

**Week #:** 8 of 32

**Phase and MLP Reviewed:** FF-EX

**Phase and MLP Introduced:** TT-FO

Parent's involvement in the session:

Parent engagement:

1. Very engaged
2. Moderately engaged
3. Minimally engaged

Positive factors observed:

Child demonstrates much FF and there is the beginning of TT naturally developing. Child is beginning to use point to "show".

Signs of stress observed:

Family has just returned home from vacation and there is a lot of stress as they re-establish household routines.

Concerns expressed by parent related to the child or family:

None new.

Situational factors that might have affected parent or child engagement:

None new.

## APPENDIX B

### An Example of Weekly Video Reflection Notes

**Weekly Video Reflection Notes**

*Scan and upload to server. Retain digital copy locally. Return form to parent at next session.*

**JAMLID: 2058**    *Week #:* 10 *of 32*    **Phase:** FF **TT** JA    **ML Principal:** GM

1. Parent: How well do you think your child showed: FF **TT** JA (circle) in today's video?  
He was not very interested in some of the games mom initiated. He did do some TT with mom during a couple of the activities. He seemed hungry and fussed a bit.

2. Parent: How do you think your child responded to: FO OP **GM** EN EX (circle) in today's video?  
The cues mom used of 1,2,3 worked for giving meaning to cue him for his turn and build the anticipation, which he enjoys.

3. What did you do that seemed to work best to promote: FF **TT** JA (circle)  
There was some TT with the knock, knock game and some running back and forth and jumping. Child also initiated some TT at the end with masks.

4. Parent or IC: Did you see anything else that was interesting in today's video?  
Disappointed he was not interested in games as usual

5. Parent: Do you have any questions about: FF **TT** JA (circle) or using the ML principles?  
No

6. After seeing video, do you have more ideas about how you could help your child show the targeted skill?  
Continue with some verbal TT games