Play Behaviors of Young Children with and without Expressive Language Delay: An Exploratory Study

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PLAY BEHAVIORS OF YOUNG CHILDREN WITH AND WITHOUT EXPRESSIVE LANGUAGE DELAY: AN EXPLORATORY STUDY

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Abstract: The association between language and play development during the early years of children's lives is important as tremendous growth in development occurs in both at this time. Literature has suggested that if children have less developed language abilities, they may also have less developed play skills. The aim of the current exploratory study was to observe and categorize children's play behavior using a comprehensive play assessment tool. This tool, the Play in Early Childhood Evaluation System (PIECES) coding scheme developed by Kelly-Vance and Ryalls (2005, 2014), provides information on differences in percentage of time in exploratory, simple pretend, and complex pretend play, highest levels of play behavior observed, and dimensions of social play. For the present exploratory study, six young children, three with and three without language delay, were matched in dyads. The six children ranging in age from 24-31 months. Using videotaped 40-minute play observations of each child during free play with a parent, researchers coded the play behaviors of each child using the PIECES coding scheme and interpreted findings accordingly. In two of the three participant dyads, participants with language delay spent more time in exploratory play and less time in pretend play compared to their counterparts without language delay. However, two out of the three participants had the same highest level of play as their matched peer. Participants with language delay demonstrated a lower percentage of play initiation than participants with no language delay. These results, although limited in generalization to only the participants of the study, suggest support of the positive association between play and language of young children and warrant further investigation. Additionally, this study offers a description of a play assessment approach that could be utilized with a larger participant cohort to extend this line of research as researchers continue to determine the appropriate role of play in assessment and intervention for young children with language delay.

Introduction

Upon hearing the word, "play," we may think of a favorite toy or childhood memory that, at face value, signifies the simpler times in life. However, play is much more significant and complex than we may remember from our own experiences. Play is an action that impacts multiple aspects of children's development including cognition, social and emotional, linguistic, and physical. Essentially, play is learning in disguise (Hirsh-Pasek, Golinkoff, & Eyer, 2003); and an elusive construct to define. According to Hirsh-Pasek et al. (2003), "grappling with the concepts of play can be analogized to trying to seize bubbles, for every time there appears to be something to hold on to, its ephemeral nature disallows it being grasped" (p. 210).

The definition of play is hard to agree on due to its complexity and the diverse features it encompasses. For example, when attempting to define the act of play, researchers have used varying descriptions. Weisberg, Zoch, Hirsh-Pasek, and Golinkoff (2013) defined play as any activity children did that met the following criteria: had no specific purpose, was exaggerated and involved a wide range of motion, and was fun and voluntary. Goldstein (2003) suggested that play was freely chosen, intrinsically motivating, and personally directed by children. Play is the aspect of children's life that allows them to experience the world and environment around them. Hirsh-Pasek et al. (2003) defined play as meeting the following five criteria: (1) must be pleasurable and enjoyable (2) have no

extrinsic goals (3) be spontaneous and voluntary; freely chosen (4) require some active engagement of the player (5) contain some element of make-believe. Even though definitions vary, there does seem to be consistency that in order for an action to be considered play, the act must be fun, child-initiated, and absent of extrinsic motivation.

Developmental Stages of Play

Although differing developmental stages of play have been identified, much like the definition, the stages of play are not unanimously agreed upon. To date, no set guidelines of play stages have been universally accepted across professions; however, most researchers agree that play development begins with the initial handling and exploration of toys and transitions into complex play acts, any action or behavior children complete with an object, that involves pretending and imaginative use of toys for purposes within and outside of their intended use (Dennis & Stockall, 2015; Kelly-Vance & Ryalls, 2014; Rescorla & Goossens, 1992).

Exploratory play. The earliest stage of play involves exploration. In this stage of play development, which begins in infancy, children start to explore their environment and the objects within that environment. Children develop the skill to characterize and identify the purpose of objects (Dennis & Stockall, 2015). Development of exploratory play skills peak roughly around 9 months of age and may still be present in children with typical development up to 24 months of age (Kelly-Vance & Ryalls, 2005). Exploratory play includes, but is not limited to, visually inspecting objects, moving objects in hand, placing objects on top on one another, and using objects in a social way without incorporating language (Kelly-Vance & Ryalls, 2005).

Simple pretend play. After children familiarize themselves with objects and people in their environment, they advance into a new form of play known as pretend, 'symbolic,' or 'representational' play. Pretend play skills typically develop between 18 months and 6 years of age (Goldstein, 2003) with simple pretend play typically occurring between 18 and 30 months of age (Kelly-Vance & Ryalls, 2005). Simple pretend play is self-directed or object-directed and is comprised of single isolated play acts (e.g., pouring from a toy pitcher to a cup, making a doll drive a car, using a toothbrush as a paintbrush) that are not linked together as part of a play 'theme' (e.g., going to school or making breakfast) (Kelly-Vance & Ryalls, 2005). Children represent increasingly diverse roles in play and sustain thematic play in the absence of concrete play materials or props in increasingly orderly and predictable sequences. Play acts become more complex and flexible, as well as more generalized and symbolic (Rescorla & Goossens, 1992). Children demonstrate pretend skills that require them to act on themselves or objects in ways that mimic more advanced thought processes (e.g., making a baby doll eat food).

Complex pretend play. Connecting pretend play acts into themes begins around 24 to 30 months of age (Gilmore, 2010; Kelly-Vance & Ryalls, 2005). Transitioning from simple to complex pretend play occurs when children combine single related play acts into themes (e.g., not just pretending to feed a baby, but feed the baby, have story time with the baby, and put the baby down for a nap). By 5 years of age, children are able to connect related multiple themes (Kelly-Vance & Ryalls, 2005) such as driving the school bus, arriving at school, teaching a class, and sitting down for lunch.

Benefits of Play Skills

Play allows young children to learn different meanings and uses for objects, which, in turn, enables children to use symbols, create rules, and have control of their environment. As these new tools are acquired and a foundation is set in place, the promotion of language, memory, and attention skills begin (Hirsh-Pasek et al., 2003). Play also benefits children in other ways by offering them opportunities to develop creativity, leadership, and interaction skills (Ginsburg, 2007). Play has been shown to help children acclimate to school requirements and promote learning readiness, learning behaviors, and problem-solving skills (Ginsburg, 2007). In addition, according to Burriss & Tsao (2002), play can increase development of divergent thinking and language acquisition. Through the modality of play, children become more flexible in their thinking, as well as learning to generate associations between objects. Bruner, Jolly, and Sylva (1976) found that as children's use of a novel object increased, so did their creativity and imagination. Many researchers (Burriss & Tsao, 2002; Dennis & Stockall, 2015; Elkind, 2007; Ginsburg, 2007; Goldstein, 2003) agree that play is important for development and has particular positive impacts on language, social, and emotional acquisition.

Language benefits. Both play and language involve the representational use of objects; therefore, play gives children the chance and practice required to form symbolic relationships. A number of studies support strong positive correlations between symbolic (i.e., pretend) play and language (Burriss & Tsao, 2002; Kennedy, Sheridan, Radlinski, & Beeghly, 1991; Tamis-LeMonda & Bornstein, 1994; Weisberg et al., 2013). Tamis-LeMonda and Bornstein (1994) noted that frequency and use of children's symbolic play were positively related to their language comprehension at 13 months and expressive vocabulary at 25 months of age. During play, children are exposed to

new vocabulary terms and grammar rules, which, in turn, promotes greater language use (Weisberg et al., 2013). Play allows children the ability to express themselves when language and cognition are still developing (Hirsh-Pasek et al., 2003). In order to be successful in play environments, children must pay attention to other participants' words and actions. Children have to concentrate on their own use of language in order to communicate successfully with peers and adults (Goldstein, 2003; Weisberg et al., 2013). Using play as a medium, language opportunities arise and provide context for children to use more and more advanced forms of communication; however, if communication is unsuccessful, play experiences can be dampened. Children who are able to use their language for more complex tasks demonstrate more confidence and motivation during play (Goldstein, 2003). "Language is the currency of social interaction" (Weisberg et al., 2013, p. 39). For example, Garcia & Frede (2010) found that if children are able to routinely select their own play activities beginning at a young age, they show more improved expressive and receptive language and cognitive performances by age 7 when compared to peers who did not select their own play activities.

There is still much that is not understood regarding the relationship between play and language development. Play may contain elements of improving language proficiency; however, no singular element of play has been found to 'unlock' language (Weisberg et al., 2013). This idea suggests that play, however complex, has multiple facets in its nature that may influence or be influenced by language development. According to Goldstein (2003), children who show complex levels of play also score highly on various assessments of cognitive functioning and communication, underscoring the notion that children who play more are able to improve language skills through play (Goldstein, 2003; Kennedy et al., 1991).

Play Behaviors of Children with Developmental Delays

Not all children develop skills according to an expected, conventional timeline. The play skills of children with early developmental delays may differ from those of typical peers. For instance, Barton (2015) found that when compared to same-aged preschool peers, children with disabilities played less often and demonstrated fewer varied pretend play behaviors than children with typical development.

Play behaviors of children with early language delay. Concurrent to the play skills demonstrated by children with more global developmental delays, children with early language delays may exhibit play skills and reach more complex play stages differently than their peers. Rescorla and Goossens (1992) investigated the pretend play skills of 40 24-to 26-month-old children, 20 with expressive language delays and 20 without language delays. The researchers found that children with language delays demonstrated fewer forms of pretend play, incorporated fewer play themes, and had fewer occurrences of pretend play when compared to their same-aged peers. Jester and Johnson (2016) examined the relationship between language deficits and pretend play with preschoolers by investigating 44 children between 4-6 years of age (22 with language deficits and 22 with typically developing language). Of the 44 participants, children with language deficits demonstrated theory of mind (ToM) skills during play to a lesser extent than their same-aged peers. Though ToM skills were different between participant groups, no differences were noted in the participants' abilities to role play. These findings suggest that children do not need to understand all factors of pretend play in order to engage in and exhibit pretend play skills (Jester & Johnson, 2016).

Children with Early Language Delay

Children with early language delay comprise 10-15% of the 2-year-old population and comprise a heterogeneous group (Desmarais, Sylvestre, Meyer, Bairati, & Rouleau, 2008). Generally, these children exhibit an expressive vocabulary deficit in the absence of potentially causal deficits (e.g., autism spectrum disorder, sensory deficits, intellectual deficits). Within this group of children commonly known as 'late talkers,' children may be identified as having an expressive language delay, receptive language delay, or mixed language delay with varying degrees of severity.

Researchers and clinicians alike infer a connection between development of play and language skills in that deficits in one may indicate deficits in the other. According to Dennis and Stockall (2015), educators may expect young children with language delays to have deficits even early in the exploratory play stage (e.g., attending to play interactions; establishing joint attention), although exploratory play behaviors have not been studied with late talkers. In addition, they suggest that young children with language delays tend to have fewer vocalizations, spontaneous imitations, gestures, and general attending behavior than their same-aged peers. Dennis and Stockall (2015) cautioned educators that young children with language delays may show deficits in later development of exploratory play (e.g., manipulating objects) and may be less likely to initiate routines, respond to other social partners, and create their own rules. Dennis and Stockall also theorized that during the development of complex pretend play skills, children with language disorders may exhibit lower problem-solving skills. With reduced access

to language, especially language used for social and play interactions, children may demonstrate difficulty generalizing skills in different contexts, building upon and making connections between past play experiences, and manipulating their language or objects to complete tasks (Dennis & Stockall, 2015).

Play as an Assessment Tool

Play, when used as an assessment tool, provides a means through which to view children's behavior, strengths, and weaknesses in a naturalistic, culturally sensitive (Meisels & Atkins-Burnett, 2000), and parent-friendly context (Meyers, McBride, & Peterson, 1996). Although several play assessment tools exist (e.g., Linder, 2008; Stagnittie, 1998, 2007), finding a comprehensive, well-researched tool encompassing a wide variety of developmental play behaviors exhibited by young children that can be directly linked to intervention is difficult. However, one such tool is included in the *Play Assessment and Intervention System (*PLAIS) analysis (Kelly-Vance & Ryalls, 2005, 2014), the *Play in Early Childhood Evaluation System* (*PIECES*) developmental scale. The *PLAIS* is an observational coding system developed by psychology researchers, Kelly-Vance and Ryalls, to be used by school psychologists and other early childhood professionals interested in young children's cognitive and social skills observable during play interactions. Observation of these skills in play can then lead directly to the development of play-based interventions targeting identified skill deficits as well as facilitate progress monitoring of these skills (Kelly-Vance & Ryalls, 2005, 2014) while providing a culturally sensitive alternative or supplement to standardized testing (Kelly-Vance, Needelman, Troia, & Ryalls, 1999).

The *PLAIS* is comprised of two components inclusive of (a) intervention, the *Child Learning in Play System* (CLIPS) component, and (b) assessment, the *PIECES* component. Use of the *PIECES*, a coding scheme designed to facilitate assessment of developmental skills through interpretation and categorization of children's observed play behaviors into three major developmental states: exploratory, simple pretend, and complex pretend play, is the focus of the present study. The *PIECES* scale yields information regarding the highest level of play achieved and percentage of time spent in each type of play. Inter-observer reliability was found to be .90 for young children with typical development and 1.00 for young children who had developmental delays (Kelly-Vance & Ryalls, 2005). Test-retest correlations were similar across children with typical and exceptional development (r=0.48, r=0.58, respectively), indicating the developmental scale can be used with children during various stages of play skill acquisition (Kelly-Vance & Ryalls, 2005). *PLAIS* components has been used for a variety of purposes including examinations of language acquisition as observed during play skill development (see Conner, Kelly-Vance, Ryalls, & Friehe, 2014; Sualy, Yount, Kelly-Vance, & Ryalls, 2011), facilitation of parent training for appropriate play interactions with young children (see Dempsey, Kelly-Vance, & Ryalls, 2013; Sempek, Kelly-Vance, & Ryalls, 2012), and identification of play's influence on development of related skill domains (see Kelly-Vance, Ryalls, & Gill-Glover, 2002; Kokkoni, Dempsey, Harbourne, Kelly-Vance, Ryalls, & Stergiou, 2010; Mallory, Kelly-Vance, & Ryalls, 2010). However, to date, the assessment component, *PIECES*, has not been utilized in the description and comparison of play skill differences for 2-year-olds with divergent language abilities. As such, the present study is unique in its exploration of a process for evaluating play and language development.

Purpose of the Current Study

The association between language and play development during the toddler years is important because between 24-30 months of age remarkable growth in both play and language skills typically occurs. At this time, children are old enough to begin to demonstrate their abilities in more meaningful and intrinsic ways, which are often expressed through play and language. During this second year of life, as speech-language pathologists (SLPs) attempt to meaningfully assess language deficits in order to plan for appropriate intervention, there is a need to determine reliable and efficient means to do so. Conducting assessments in natural contexts such as play and evaluating the stage of play development may lead to more ecologically valid language and play interventions. While few researchers (e.g., Rescorla & Goossens, 1992) have examined the relationship between play and early language delay, there is much more to determine about this relationship for young children. For example, although Rescorla and Goossens (1992) studied pretend play for young children with language deficits, they did not include measures of exploratory play skill development nor did they discriminate between simple and complex pretend play acts, which would offer a more discrete, descriptive view of the play skills of toddlers late to develop expressive language. The present study is an exploration of a uniquely-designed assessment approach, including the use of the *PIECES* (Kelly-Vance & Ryalls, 2005, 2014), to identify the exploratory play skills, simple and complex pretend play skills, and social play dimensions of three late talkers compared with peers who are developing language typically. The aim of the present study was to observe children's play behavior with their mothers by piloting a

unique approach to categorize their play behaviors. If the approach was found useful in this exploratory study, that would indicate its potential utility in extending this line of research to a larger participant cohort.

Method

Participants

The current study involves the use of a secondary data analysis on a combined archival data set of two-year-old children: One data set that includes three participants identified as having an expressive language delay (DeVeney & Sheridan, 2017) and another that includes 11 participants identified as not having a language delay (DeVeney & Bigler, 2017). For the present exploratory study, six participants were identified and sample-matched. Of the six, the three children identified with an expressive language delay were matched for age (within one month), gender, and maternal education level (within one level of the coding scheme used: see Table 1 for coding scheme) with three participants who did not have a language delay from the pool of 11 potential matches. Each resulting participant dyad was matched on at least two of the three established criteria and one pairing matched on all three. All paired participants were within one month of age of one another, two of the three pairings were of the same gender, and two of the three were within one level of the coding scheme used for maternal education. One pairing for maternal education is unknown because one parent declined to comment on that during data collection. See Table 1 for participant sample-matched data.

Table 1
Participant sample-matched data

Participant Groupings	Age[a]	Gender	Maternal Education Level[b]
Participant Dyad 1			
LD[c]1	25	M	3
NLD[d]1	25	M	4
Participant Dyad 2			
LD 2	31	M	4
NLD 2	31	F	5
Participant Dyad 3			
LD 3	24	M	5
NLD 3	25	M	N/A

[a] Age in months

[b] Parental report on scale of 1-5 in which 1=less than high school, 2=high school or equivalent (e.g., GED), 3=some college, 4=4-year collegecompletion, 5=post graduate work

[c] Participants identified as having an expressive language delay; LD = language delay

[d] Participants identified as not having a language delay; NLD = no language delay

All participants in the archival data sets were recruited from childcare centers and pediatricians' offices throughout a metropolitan community in the Midwest. The criteria to determine the presence of a language delay were established by using several evaluation tools: the *MacArthur Bates Communicative Development Inventory* (CDI: Fenson et al., 2007), the *Preschool Language Scale- Fifth Edition* (PLS-5: Zimmerman, Steiner, & Pond,

2011), the *Modified Checklist for Autism in Toddlers – Revised with Follow Up* (M-CHAT-R/F: Robins et al., 2013), and the *Ages and Stages Questionnaire-3* (ASQ-3: Squires & Bricker, 2009). To qualify for the study as a participant with a language delay, toddlers met the following criteria (see Table 2 for participant scores) consistent with inclusionary measures used by DeVeney, Cress, and Reid (2014):

1. Scored at or below the 10th percentile on the *MacArthur Bates Communicative Development Inventory: Words and Sentences*, a standardized assessment tool used to measure expressive vocabulary.
2. Scored at least one standard deviation below the mean (i.e., a standard score of 85 or below) on the PLS-5 expressive communication subtest, part of a standardized assessment tool used to measure a child's expressive and receptive language skills.

Participants who were identified as not having a language delay met the following eligibility criteria (see Table 2 for participant scores):

1. Scored at or above the 30th percentile on the CDI.
2. Obtained a standard score of 90 or higher on the expressive communication subtest of the PLS-5.

All participants were identified as having no secondary conditions (e.g., autism, vision/hearing deficits) based on parental report, M-CHAT-R/F scores, a standardized screening tool to identify possible risk of autism, and ASQ-3 responses, a criterion-referenced developmental domain screener. All participants obtained a passing score on the M-CHAT-R/F, a passing score on at least two of the five subsections on the ASQ-3, and parental report of (a) no concerns for vision or hearing abilities and (b) passing newborn hearing screening. Additionally, all participants lived in the Midwest and were monolingual English speakers.

Table 2
Matched participants standard language scores

Participant	CDI[a]	PLS-5 Expressive[b]		PLS-5 Auditory[c]		PLS-5 Total Lang.[d]	
	Percentile	SS[e]	Percentile	SS	Percentile	SS	Percentile
Participant Dyad 1							
LD 1	<5%	85	16	82	12	82	12
NLD 1	70	119	90	118	88	120	91
Participant Dyad 2							
LD 2	<5%	77	6	81	10	78	7
NLD 2	75	103	58	107	68	105	63
Participant Dyad 3							
LD 3	<5%	82	12	95	37	87	19
NLD 3	30	91	27	106	66	98	45

[a] MacArthur Bates Communicative Inventory Score (CDI)
[b] Preschool-Language Scale – 5th Edition (PLS-5), Expressive Communication subtest
[c] PLS-5 Auditory Comprehension subtest
[d] PLS-5 total language score (combination of both expressive communication and auditory comprehension subtests)
[e] Standard Score (SS)

Setting

Participants were video recorded in a Midwest university's Speech-Language-Hearing Clinic. Each participant was provided an individual clinic room and interacted with parents and speech-language pathology graduate students affiliated with the research projects.

Materials

Within each clinic room, the same researcher-provided, age-appropriate toys were available for play. Toys included a farm set, car/garage set, and grocery set. These toy sets were selected because of the likelihood they would be familiar to most young children and their utility in potentially eliciting a wide range of play behaviors. All of the same toys were available throughout each data collection session for each participant. Parents were provided the following prompt by research personnel before each play session, "I want to see what kinds of activities _____ enjoys. I'd like to see how _____ communicates when s/he enjoys what s/he is doing. So, play and have fun. Help _____ enjoy what s/he's doing." Parents were informed that their role was to facilitate, not lead or interject in, their child's actions during play. A total of forty minutes of play-based communication samples were collected from each child as he/she played with his/her parent and the provided toys across two data collection sessions (20 minutes per session) conducted one week apart. All of the sessions were video recorded for later review using a camcorder with a mounted external microphone. A graduate student research assistant was in the room with each parent-child dyad throughout the play interactions. The graduate student did not interrupt or participant in the play sampling. Her role was to facilitate the camera use and, after providing the standard prompt to parents prior to the play sample, she sat away from the parent and child behind the video camera and busied herself with paperwork while each play sample was recorded.

Procedures

The procedures of the secondary data analysis involved reviewing, coding, and categorizing the participants' play skills using the *PIECES* (Kelly-Vance & Ryalls, 2005, 2014). The play scale was completed using a 40-minute observation of each child engaging in free play with a parent. The play session can be conducted in virtually any setting with any toy sets that are extensive and diverse enough to elicit a wide range of play behaviors (Kelly-Vance & Ryalls, 2005, 2014). Within the existing data sets, two 20-minute play samples (referred to as Sample 1 and Sample 2 in Table 3) were obtained for each participant one week apart in a clinical setting and all were analyzed for participant mean length of utterance (MLU), number of different words used, total number of words used, and the resulting type-token ratio (TTR) (Table 3). These samples were combined to obtain a 40-minute sample to complete the *PIECES* scale for each participant.

The primary investigator was trained on the *PIECES* coding scheme and trained one additional independent coder using the resources, coding scheme forms, and videotaped training samples available from http://www.plaisuno.com.

Coding Procedures for the PIECES Scale

Play acts that were within the exploratory play category were not included in complex pretend play coding. Play acts were coded as simple pretend play if the act was within the simple pretend play category and was not preceded or followed by another related simple pretend play act (e.g., the child took a "bite" of an apple [simple pretend play] and then talked to mom [non-play act]). Simple pretend play acts occurring back-to-back within the same "theme" (e.g., taking care of a baby-feeding, rocking, and putting baby to bed) were coded as complex pretend play acts. Therefore, in order for a play act to be considered complex, the child had to demonstrate two or more simple pretend play acts back-to-back within the same theme.

Within the exploratory and pretend play categories, there are subcategories that comprise the makeup of these play types. Examples of exploratory play include subcategories such as the following: mouthing toys, basic manipulation of toys (e.g., visually inspects or handles a toy), and single action functions such as performing one action with a toy (e.g., shake rattle, roll ball). Simple pretend play subcategories include play acts such as the following: other-directed play (e.g., the child acts on another person or lifelike object with a toy), repetitive combinations (e.g., the same play behavior with the same toy is directed toward two or more different objects/people), and agentive play act (e.g., an action is attributed to animate or lifelike toy). Complex pretend play includes multiple play acts representative of the same theme, some of which may appear to be pre-planned by the child (Kelly-Vance & Ryalls, 2014).

Due to the nature of the current study, which included identification of specific play acts, non-play acts were not coded, but included behaviors such as talking with parent, 'rough housing' (i.e., physical behavior), and general inattentiveness. The measurement in the present study was frequency of specific play acts and frequency of child or adult play initiation; such acts were 'tallied' throughout and converted to percentages, not measured according to time-log increments. A tally for play initiation is given to either the child or adult within the start of a single play act. For the purposes of this study, play initiation refers to the play participant who proposes or initiates a play act. A child or parent receives a tally for play initiation when he or she proposes a new or different form of play and is the initiator, not the reactor. For example, if a parent grabs an apple and takes a pretend bite and offers the apple to the child (e.g., initiating a new play act), and then the child in return takes a pretend bite (e.g., reacting to the parent's play act), the play initiator is the parent since he/she was the one to suggest the play act.

Table 3
Language use during play sample

Participant	MLU[a] Sample 1 | Sample 2	# Different Words Used Sample 1 | Sample 2	Total # of Words Used Sample 1 | Sample 2	TTR[b] Sample 1 | Sample 2
Participant Dyad 1				
LD 1	1.08 | 1.00	22 | 25	86 | 55	26% | 45%
NLD 1	2.47 | 2.27	76 | 56	248 | 223	31% | 25%
Participant Dyad 2				
LD 2	1.00 | 1.22	10 | 12	23 | 23	43% | 52%
NLD 2	2.57 | 2.83	81 | 77	244 | 266	33% | 29%
Participant Dyad 3				
LD 3	1.00 | 1.08	7 | 13	20 | 40	35% | 33%
NLD 3	1.21 | 1.08	23 | 35	74 | 101	31% | 35%

[a] Mean Length of Utterance (MLU)
[b] Type-Token Ratio (TTR)

The independent coder was a graduate student in speech-language pathology. None of the play sample coders were involved with the initial data collection. The additional coder was blind to participant conditions (e.g., presence of expressive language delay and no language delay present). Before coding the play samples in the current study, the independent coder reviewed and coded several play samples of archival participants not included in the current analysis corpus and achieved 100% reliability on highest level of play and categorical distinction of primary play initiator (parent or child). Regarding the percent of play acts attributed to a stage of play, the independent coder achieved 99% reliability with the primary investigator (exploratory, simple pretend, or complex pretend). To achieve and maintain reliability, the independent coder and primary investigator noted the session time for each play act described (e.g., 1:42) so that play acts could be matched more easily. Videos could be watched an unlimited number

of times to facilitate accurate coding. After the coders met the initial training goal of at least 90% reliability, analysis of the data set commenced. The primary investigator coded 100% of the data set and the trained independent coder re-coded 20% of the data set. Maintenance reliability was 100% across the three dimensions: highest level of play, initiation, and percentage of play in each stage.

Research Design and Planned Data Analysis

The current project represents a small descriptive study using matched-samples (Kazdin, 2011) to examine differences in percentage of play acts at each defined play level for six children (three dyads of matched toddlers with and without expressive language delays). Due to the nature of the research design and sample size, statistical analysis was not used. Consistent with this type of design, findings from the study are depicted using descriptive statistics for each matched-sample comparison dyad. The following measures are graphed for visual representation and inspection: percentage of time spent in pretend play (simple, complex) versus exploratory play, highest levels of observed play behavior, and dimensions of social play (play initiation versus responding to play initiations).

Results

The results of this study are categorized into three sections. The first section addresses differences in percentage of time spent in pretend play. The second section addresses highest level of observed play. The third section addresses differences in initiation of play. Visual inspection of descriptive statistics is the primary means by which to examine differences across the three participant dyads.

Percentage of Play

Comparison of participant dyad 1. Each participant dyad's percentage of play in each play stage is depicted in Figure 1. In participant dyad 1, LD1 spent 99% of his time in exploratory play and 1% in simple pretend play. NLD 1 spent 86% of his time in exploratory play and 14% in simple pretend play. No complex pretend play acts were observed for either participant. The combined total of time spent in pretend play for LD1 and NLD1 was 1% and 14% respectively. Overall, LD1 spent less time in pretend play than NLD1.

Comparison of participant dyad 2. In participant dyad 2, LD2 spent 81% of his time in exploratory play, 9% in simple pretend play, and 10% in complex pretend play. NLD2 spent 88% of her time in exploratory play, 5% in simple pretend play, and 7% in complex pretend play. The combined total of time spent in pretend play for LD2 and NLD2 was 19% and 12% respectively. Overall, LD2 spent more time in pretend play than NLD2.

Comparison of participant dyad 3. In participant dyad 3, LD3 spent 91% of his time in exploratory, 9% in simple pretend play, and 0% in complex pretend play. NLD3 spent 60% of his time in exploratory play, 15% in pretend play, and 25% in complex pretend play. The combined total of time spent in pretend play for LD3 and NLD3 was 9% and 40% respectively. Overall, LD3 spent less time in pretend play than NLD3 by a large margin.

Figure 1. Matched participants percentage of play.
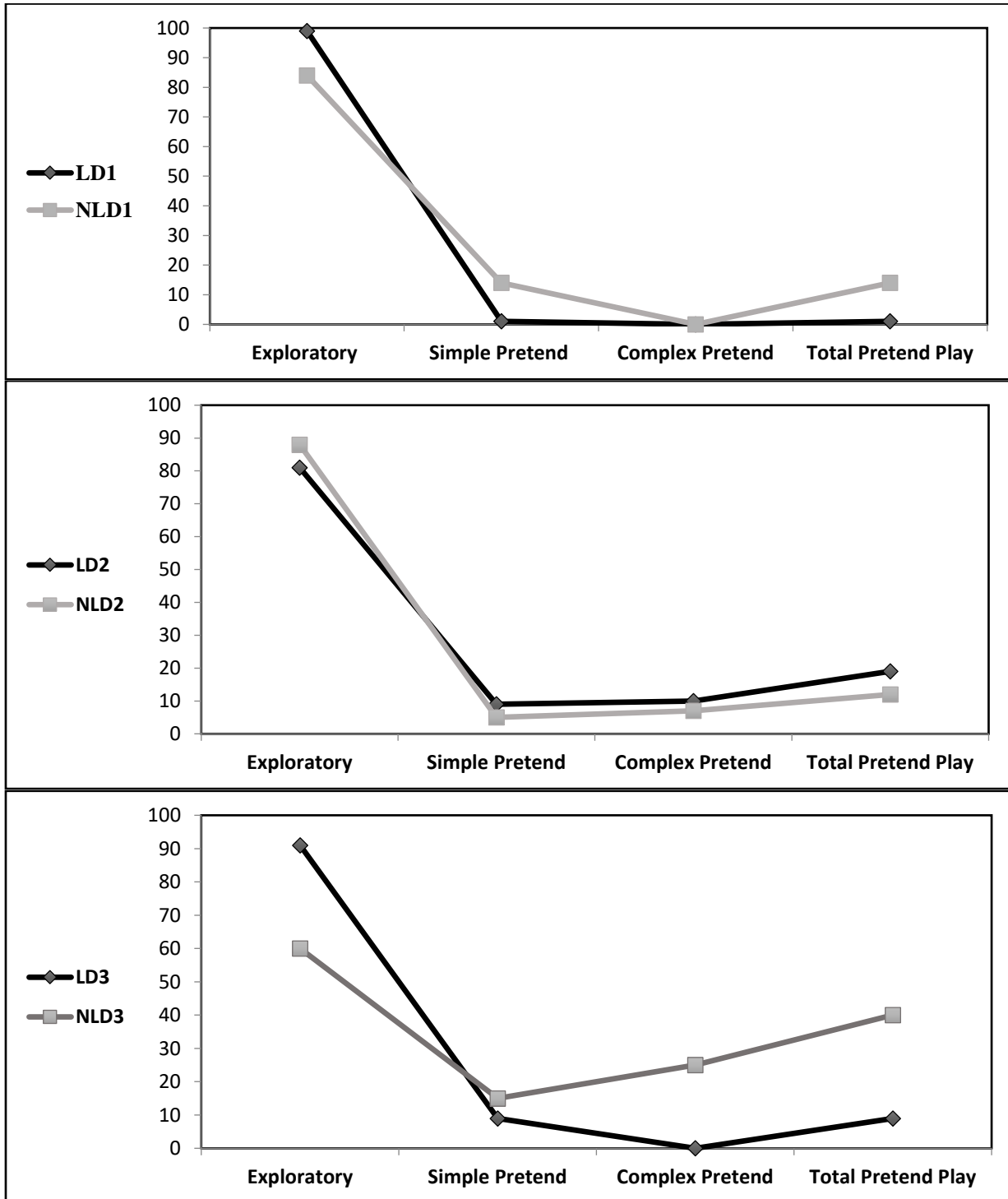
Highest Level of Play

Comparison of participant dyad 1. Each participant dyad's highest level of play and number of times observed are depicted in Table 4. See Figure 2 for each participant dyad's highest individual play act. The highest level of play for both LD1 and NLD1 was simple pretend play; however, LD1 demonstrated simple pretend play once and NLD1 demonstrated simple pretend play 14 times. In terms of individual play act, both participants had the highest play act, which was other-directed play.

Figure 2. Matched peers individual play act summary.

	Self-Directed Play Act	Object-Directed Play Act	Other-Directed Play Act	Substitution Play Act	Repetitive Combinations	Variable Combinations	Agentive Play Act	Multiple Step Play Act	Highest Level of Play
NLD1			✕						SPP
LD1			✕						SPP
NLD2							✕	✕	CPP
LD2					✕			✕	CPP
NLD3					✕			✕	CPP
LD3		✕							SPP
Key:	Simple Pretend Play				Complex Pretend Play				

Comparison of participant dyad 2. The highest level of play for both LD2 and NLD2 was complex pretend play. LD2 demonstrated complex pretend play six times and NLD2 demonstrated complex pretend play four times. For individual play act, LD2's highest level play act was repetitive combinations, and NLD2's highest level play act was higher at agentive play act.

Comparison of participant dyad 3. The highest level of play for LD3 was simple pretend play, which was observed nine times. The highest level of play for NLD3 was complex pretend play, which was observed eight times. LD3's highest individual play act was object-directed play, and NLD3's highest individual play act was higher at repetitive combinations.

Initiation of Play

Each participant dyad's percentage of child initiation during play depicted in Figure 3. All participants (n=6) exhibited more initiation of play than their parent during the play interactions (e.g., participants attempted to initiate their own play acts more often than responding to the initiation of play by the parent). However, all NLD participants showed higher percentages of initiation (range= 90-98%) than all LD participants (range= 88-89%).

Table 4
Matched participants highest stage of play observed

Participant	Highest Stage of Play	Number of Times Observed
Participant Dyad 1		
LD 1	Simple Pretend Play	1
NLD 1	Simple Pretend Play	14
Participant Dyad 2		
LD 2	Complex Pretend Play	6
NLD 2	Complex Pretend Play	4
Participant Dyad 3		
LD 3	Simple Pretend Play	9
NLD 3	Complex Pretend	8

Figure 3. Matched participants percentage of initiation with parent during play sample.
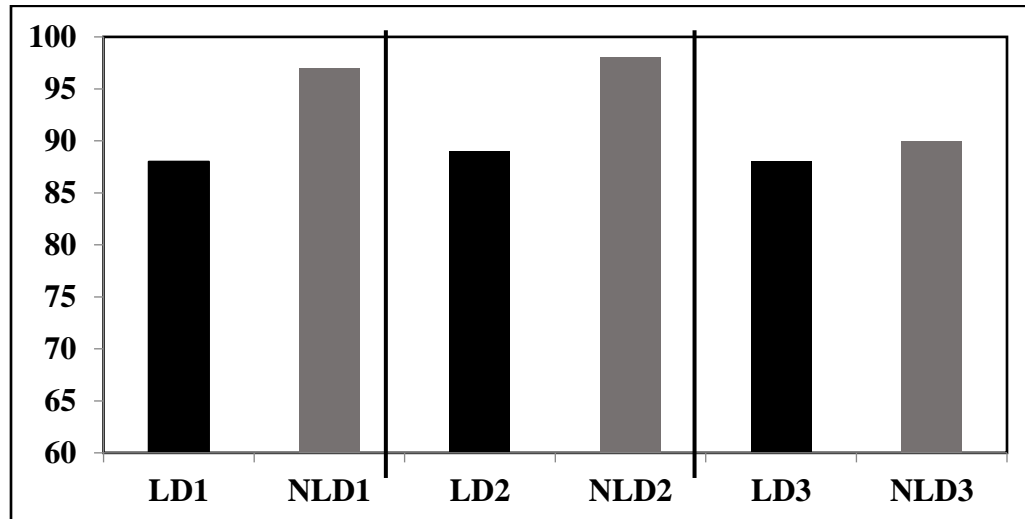
Discussion

The current study examined the play behaviors of children with and without expressive language delays. The investigator sought to observe complexities, or stages, of play between three matched participant dyads. Researchers previously noted differences of play skills between young children with typically developing language and those with language delays (Dennis & Stockall, 2015; Jester & Johnson, 2016; Rescorla & Goossens, 1992).

However, these previous investigations did not include the use of the *PIECES*, did not discriminate between simple and complex pretend play acts, or include categorization of exploratory play skills. Therefore, this study provided a unique contribution regarding assessment approach, use of the *PIECES*, to address a nuanced and broad assessment of play stage components.

Percentage of time in pretend play. In two out of the three participant dyads, the participants without language delay demonstrated higher percentages of time spent in pretend play than their counterparts with language delays. However, this was not the case in all of the dyads. This finding may support previous research as Kennedy et al. (1991) noted that the relationship between pretend play and language development were within normal ranges for children without language delay. Their findings indicated higher levels of comprehension and language were generally associated with higher levels of play maturity (1991). Rescorla and Goossens (1992) noted that participants with typical language demonstrated more pretend play than participants with language delay. They attributed the differences found in participant groups to retrieval ability (e.g., the ability to retrieve vocabulary and other linguistic elements), which supported the participants with typical language development in making their play more complex. When children have the language to support play, they are able to spend more time in the pretend play stage (Rescorla & Goossens, 1992). These findings provide ground for further studies to address the validity of play complexity as an indicator of a child's speech and language development.

Percentage of time in exploratory play. In the present study, for two out of the three participant dyads, participants with language delay demonstrated a higher percentage of play time spent in exploration when compared to their counterparts without language delay. However, this was not the case in all of the dyads. This finding suggests support for previous research findings (Jester & Johnson, 2016; Rescorla & Goossens, 1992). Rescorla and Goossens (1992) proposed that although participants with and without language delays spent the same amount of time with toys, the participants with language delay were more engaged with the physical aspects of the toy (i.e., the exploratory play stage), rather than the more advanced social component of play (i.e., simple pretend and complex play stage). They theorized that children with language delay could spend more of their time in exploratory stages of play due to a retrieval problem, which makes it difficult for them to access their lexicon during play interactions on their own. Therefore, children with language delays are at a disadvantage because they cannot access key components of language (e.g., vocabulary, grammar, syntax) as easily as children without language delays, making their play acts less robust and complex.

Jester and Johnson (2016) noted that when participants with language delays did participate in pretend play, the acts were often interrupted by exploratory or non-play acts with shorter duration than the participants with typical language development. The findings of the present exploratory study offer additional evidence motivating further research in this area.

Highest level of play. In the present study, two out of the three participants without language delay demonstrated higher stages of play than their counterparts with language delays. However, this pattern was not observed in participant dyad 2, as the participant without language delay (NLD2) demonstrated fewer complex play recurrences when compared to her counterpart with language delays (LD2). This difference in the frequency of complex pretend play could be attributed to individual child and/or parent factors. For child factors, NLD2 used her time to verbalize with her parent rather than playing during the combined 40-minute play session. However, when NLD2 did play, her simple pretend highest specific play act was actually higher than that of LD2, demonstrating that NLD2 had the ability to talk and engage in age-appropriate pretend play. As noted in Table 2, participant NLD2 had much higher language skills when compared to her matched peer and spent the majority of her play session talking with her parent about the toys rather than playing with them. A parental factor to consider is that the parent of the NLD2 was an educator, which may explain why there was more time spent on the importance of verbal interaction during play rather than the play act itself. Even though NLD2 demonstrated fewer complex play acts compared to her counterpart, she did demonstrate a higher level within the complex pretend play stage. For example, both participants in dyad 2 were coded as having complex pretend play as their highest level of play. However, within that play stage are varying levels of complexity (See www.plaisuno.com for the play stage coding scheme). NLD2 demonstrated agentive play (e.g., when a child makes a doll comb her hair), while LD2 only demonstrated object-directed play. Both types of play are considered complex; however, agentive play is coded as a higher complex play skill. This suggests that even though LD2 demonstrated complex pretend play with higher frequency than NLD2, NLD2 demonstrated a higher level of complex pretend play. Had NLD2 spent less of her time engaging in conversation and more time in playing, her percentage of complex play may have been higher.

The finding that two out of three participants without language delay demonstrated more advanced highest stages of play than their counterparts with language delay suggests support of results found by Kennedy et al. (1991) and Rescorla and Goossens (1992). In the absence of physical objects, Rescorla and Goossens noted that participants with typical language development tended to have a larger variety of play behaviors than those with language delays

(1992). They hypothesized that children with typical language development used their language skills to support their pretend play interactions to increase their play complexity. While the results of the present study can only be applied to the participants of the study, given its small sampling of the larger population, it does highlight the need for more research in this area.

Percentage of initiations. All present study participants without language delay initiated more often with their parent play partner than their matched peers with language delay. This finding is limited by the small sample size and exploratory nature of the present study but does offer some support of the notion that young children with language delay rely more on others during play and are more likely to turn to adults when presented with problematic social situations, such as when faced with novel toy stimulus items. Jester and Johnson (2016) found that children with language delays had difficulty processing linguistic information and taking the perspective of others (i.e., Theory of Mind: ToM) compared to peers with typical language development. Both processing and ToM skills are key to successful social interactions with others, including engaging others in play. With limited ability to process linguistic information, children with language delays rely on others to fill in these gaps as play interactions increase in complexity (Jester & Johnson, 2016).

Limitations

Limitations were present in the current study. The small sample size was a limitation in that it restricted the generalization of the study results to only those participants in the study. Relatedly, the researchers' noted difficulty in obtaining exact dyad matches across age, gender, and maternal education level was influenced by the small participant pool. With a larger sample size, more exact dyad matching could be completed. Another limitation involved the time participants spent in non-play behavior (e.g., talking). For some participants, this may have taken up a substantial portion of the total 40 minutes of play as with participant NLD2, which impacted the play analysis. Even though a participant may have higher levels of play, their percentage of time in pretend or complex pretend play may have appeared as less because the participant took time out of their play time to talk with others in the room.

Future Directions

Replication of the study should focus on using a larger sample to better accommodate for individual participant variances and allow the use of inferential statistics to strengthen the generalizability of the results to the broader target population, young children with language delay. Another aspect to consider is the setting and the materials used in the study. To reduce possible limitations, researchers should consider using a more ecologically valid setting, such as the home. In this environment, personnel interacting with the participant would be familiar and non-disruptive to the play environment (e.g., parent, guardian, sibling, etc.). The influence of an unfamiliar person in the play environment had unknown effect on the results of this study; however, it was a constant condition across the present study participants. For future investigations, researchers could consider removal of the unfamiliar personnel to determine the role this may have played in participant behaviors. An additional future direction could include removal of the parent factor by selecting a childcare setting for conducting the study. This way, children would still be playing with a familiar adult (e.g., teacher, teacher's aide), but not the parent. Children's play behavior may be different, but still be typical for them, when parents are not the primary play partner. Since previous studies have yet to include exploratory play into the data analysis, more samples should be collected to compare with the results of the findings of the current study. Future studies might also involve further investigation of the potential gender differences in play skills of children with and without language delays. Additionally, it would be of interest to analyze the non-play behavior of participants to broaden the knowledge base regarding the range of typical child behaviors that may be observed in play environments.

Implications

Finding effective ways to assess and evaluate children's language skills is a critical component to the field of speech-language pathology. Tools to effectively assess language deficits in young children under the age of three are restricted. Conducting assessments in contexts such as play, may lead to a more valid representation of children's language abilities. Given the results of the current study, which seem to indicate limited support of previous research, the relationship between play and language is generally predictable. Children without language delay tend to demonstrate typical play development whereas children with language delay tend to demonstrate less developed play skills. Speech-language pathologists can use play as a tactic to analyze children's abilities therapeutically and also as an assessment data point for evaluating developmental skills. Speech-language pathologists could potentially rely more on play as an assessment tool for which to view children's language skills.

For example, speech-language pathologists may consider offering support to families by implementing interventions that highlight language development *through* play. Such intervention programs lend themselves to a more family-centered and naturalistic approach (e.g., The Hanen Program) in which parents can be trained to modify their own interaction styles in order to maximize opportunities for engagement during play that increase their child's language skills.

Conclusion

In this study, the aim was to observe children's play behaviors by piloting a unique approach for coding and categorizing their play behaviors. This approach, the *PIECES* coding scheme, allowed for description and comparison of differences in percentage of time in exploratory, simple pretend, and complex pretend play, highest levels of observed play behavior, and dimensions of social play for six young children, three with expressive language delay and three without. Overall, due to the small sample size and exploratory nature of the study, the findings cannot be generalized to participants outside of the study. However, these findings do highlight the need for continued systematic research regarding young children with language delay and their propensity toward lower levels of play and initiation than those of peers without language delay. Although more investigation is warranted in this area to determine meaningful differences in play behaviors and whether differences noted are compelling for clinical intervention, speech-language pathologists and researchers are encouraged to expand the utilization of play observations as they add additional information regarding young children's language abilities. To that end, use of the *PIECES* coding scheme (Kelly-Vance & Ryalls, 2005, 2014) has been found useful in this exploratory study indicating the potential for its utility with larger investigations involving description and assessment of play behaviors of young children in naturalistic settings.

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