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Unraveling the Linguistic Odyssey: An Investigation into the Intricate Nature of Language Development and Social Communication Skills in Autism Spectrum Disorders within the Context of Developmental Linguistics

Sinan Özyurt[1]

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Abstract

The difficulties encountered in the domains of language and communication development serve as a fundamental diagnostic criterion for Autism Spectrum Disorder (ASD), and these difficulties are considered a crucial factor in assessing the severity of autism in children with ASD. It is widely acknowledged that the development of language in children with ASD is characterized by a multifaceted nature. Some children with ASD may never attain verbal language skills, while others may display verbal communication patterns closely resembling those of their typically developing peers. In this sense, this comprehensive review study delves into the developmental attributes of language and communication skills in children with ASD. It becomes apparent that children with ASD manifest syndrome-specific developmental traits or deficits that are associated with non-verbal social communication skills in the preverbal phase, as well as linguistic components during the verbal language phase. Hence, this review study will address the developmental trajectories of non-verbal social communication skills during the pre-linguistic phase in children with ASD. In addition, it will scrutinize the developmental characteristics of language components such as morpho-syntax, semantics, and pragmatics in children with ASD during the verbal language phase. It is believed that this study, culled from the existing literature, will serve as a guiding light to educators and researchers engaged in the field of language and communication development in children with ASD.

Keywords: Autism spectrum disorder, Language development, Cognitive development, Nonverbal communication behaviors

1. Introduction

[1] Asst. Prof Dr., Gaziantep İslam Science and Technology University, sinanzyurt28@gmail.com https://orcid.org/0000-0002-9366-9322

Autism Spectrum Disorder (ASD), as defined in the 2013 publication of the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) by the American Psychiatric Association (APA), is a kind of neurological developmental anomaly that occurs in the early stages of a child's growth. It is generally characterized by persistent deficits in social interaction and social communication, as well as the manifestation of constrained or repetitive behaviors. The challenges experienced by children with ASD in terms of their social interactions and language development serve as integral components of the diagnostic criteria for this condition. The severity of ASD is measured in tandem with the intensity of children's problems in social communication and the severity of their restricted and repetitive behaviors in daily life (APA, 2013). According to the DSM-5, children diagnosed with ASD experience difficulties in terms of social interaction and language development as follows: Challenges in social-emotional reciprocity include difficulties in sustaining mutual conversations, limitations in sharing interests, emotions, and desires, as well as difficulties in developing, comprehending, and maintaining social relationships with others efficiently. For instance, these difficulties manifest as the inability to maintain the continuity of mutual conversations, limitations in conveying emotional expressions and desires, and problems in understanding and establishing social relationships effectively enough.

In a similar vein, individuals with ASD exhibit various dimensions of difficulties in their nonverbal communication skills. In this sense, limitations in maintaining eye contact and using body language, challenges in the use and interpretation of gestures, as well as constraints observed in all nonverbal communication behaviors and facial expressions, are some of the examples of these difficulties. Moreover, difficulties in adapting to different social contexts, engaging in symbolic play with peers, showing indifference towards peers, and limitations in establishing, understanding, and maintaining relationships are considered significant indicators of these challenges (Ökcün-Akçamuş, 2016). In this context, in line with the DSM-5 criteria, nonverbal communication difficulties faced by individuals with ASD play a significant role in the process of such a diagnosis.

In children with ASD, the acquisition of social communication skills is accompanied by some observable strengths and weaknesses that change with development in the course of time (Mundy & Sigman, 1989). Language and communication difficulties in such children can manifest across a wide spectrum, which ranges from delayed speech to complete nonverbal communication. Moreover, even children capable of constructing words and sentences may encounter challenges in effectively using language for social and interactive purposes (Paul, 2007; Wilkinson, 1998). In the preverbal period, children diagnosed with ASD commonly exhibit

limitations in nonverbal social communication behaviors, including gestures (Töret & Acarlar, 2011), imitation (Charman et al., 1997), and joint attention (Mundy & Markus, 1997). However, as they progress toward acquiring verbal language, these children demonstrate some diffrences in their language development characteristics. While phonology, syntax, and semantics may develop well in some cases, some noticeable and consistent difficulties may emerge in the pragmatic aspect of language use, too (Tager-Flusberg, Paul & Lord, 2005). In this regard, the objective of this study is to provide a comprehensive review of the existing research in the literature to explore the developmental traits of language and communication skills as well as potential challenges experienced by children with ASD. Thus, an in-depth exploration of language and communication difficulties in children with ASD will enhance our comprehension of the complex nature of these skills. Additionally, this research is expected to serve as a valuable reference for educators and researchers working with children facing challenges in language and communication.

In children developing in a normal process, certain social communication behaviors, such as gestures, imitation, and the initiation of shared attention, become evident before the emergence of verbal language (Carpenter, Nagell, and Tomasello, 1998). These nonverbal social communication behaviors are regarded as foundational pillars in the intricate construction of language development, which plays a significant role in predicting the course of language acquisition (Bruner, 1975; Carpenter et al., 1998). Accordingly, this study employs a two-pronged methodology to meticulously investigate the linguistic and communicative developmental characteristics of individuals with ASD. This dual approach encompasses an initial phase focused on nonverbal social communication skills and a subsequent phase that delves into the progression of verbal language.

2. Development of Non-verbal Social Communication Skills in ASD-Afflicted Children

Human beings are inherently social beings from the very moment of their birth (Carpenter et al., 1998). Newborn infants can exhibit certain social behaviors shortly after birth, including the imitation of adults' oral motor skills (Meltzoff & Moore, 1977; 1983). However, as postulated by Trevarthen (1979), these social behaviors become notably more pronounced around the age of 1-2 months, coinciding with the initiation of face-to-face interactions with adults (as cited in Carpenter et al., 1998) . It is essential to note that these behaviors exhibited by infants are context-specific and lack a communicative intent or purpose (Owens, 2012). In typically developing infants, at approximately 8 months of age, the emergence of the ability for mental representation is accompanied by the onset of purposeful communicative behaviors. During this developmental stage, infants begin to employ communicative actions as a means to capture the attention of their caregivers and to attain desired objects or outcomes as often as possible. During the developmental span between 8 and 10 months, the initial manifestations of intentional

communication emerge through purposeful gestures and actions. In this critical phase, infants employ expressive acts, such as the act of presenting or holding an object in a way that enables their mothers to perceive it (Paul, 2008). In tandem with the development of intentional communication, the incipient emergence of non-verbal social communication competencies equips infants with the capacity to engage in interactive exchanges with the individuals in their immediate milieu without the use of verbal language (Carpenter et al ., 1998). And according to Bruner (1975), this progression serves as the cornerstone for the eventual development of verbal linguistic aptitude in children with ASD.

Children diagnosed with ASD often encounter difficulties in their non-verbal social communication skills. Research conducted retrospectively, involving the analysis of pre-diagnosis video recordings and family reports, has revealed that, when compared to their typically developing peers, children with ASD manifest specific social developmental traits during their early years from infancy to the toddler stage. These traits encompass a diminished inclination to engage in visual contact with others, a diminished capacity to establish eye contact, a tendency to be unresponsive when addressed by name, limitations in their involvement in interactive activities, constraints in their motor imitation skills, participation in less intricate play compared to their neurotypical counterparts, and an absence of symbolic play abilities. Likewise, children with ASD confront such additional challenges in social communication as limitations in jointly directing attention through pointing and displaying objects, difficulties in responding to communicative gestures, the use of non-verbal vocalizations, and a propensity to employ other individuals as instrumental means (Chawarska & Volkmar, 2005). Such children also encounter some vicious difficulties in terms of social adaptation, joint attention aptitude, receptiveness to emotional cues (as cited in Dawson et al., 2004), the capacity for imitation (as observed in the research of Stone, Ousley & Littleford, 1997), and engaging in symbolic play when compared to typically developing or developmentally delayed children. In the subsequent sections, we will explore the non-verbal social communication behaviors of children with ASD, that is, actions like gestures, imitation, joint attention, and play skills.

2.1. Understanding the Development of Gestures in ASD-Afflicted Children

Gestures, which can be described as purposeful actions that convey communicative meaning, are commonly identified by the utilization of hands, fingers, arms, facial expressions, and body postures. These behavioral gestures demonstrated by children are frequently divided into two fundamental categories: deictic and representational gestures, as outlined by Iverson and Thal (1998). Deictic gestures, as explicated by Gullberg, Bot, and Volterra (2010), typically

encompass actions aimed at indicating or directing attention to an external stimulus. During early childhood, these deictic gestures involve actions such as pointing, reaching, and offering (as cited in Iverson & Thal, 1998). Similarly, Bates, Camaioni, and Volterra (1975) introduced a classification scheme for deictic gestures, distinguishing between proximal and distal gestures based on the way how they are executed. Convergent gestures demand tactile interaction with either an object or an interactive individual partner, as exemplified by actions such as proffering a toy or gently guiding an adult's hand. In contrast to this, indicative gestures entail actions that refrain from physical contact, with pointing being a notable example, signifying objects or activities without necessitating direct physical engagement with someone (Crais, 2007). When viewed within the context of communicative purposes, indicative gestures can be neatly classified into two distinct categories: requests (proto-imperative) and commentary (proto-declarative) gestures (as delineated by Bates et al., 1975). Request gestures are strategically employed by children to secure coveted objects or access specific activities. On the other hand, commentary gestures serve as the noble purpose of diverting an adult's attention toward a particular object or redirecting their focus to an external stimulus, which is detailed in the research of Iverson and Thal in 1998.

Representational gestures, as elucidated by Crais (2007), are manual expressions that possess symbolic attributes, specifically signifying particular contextual meanings. These gestures can be further subcategorized into two primary types: object-related gestures, exemplified by actions like mimicking the act of drinking from a cup, and conventional gestures, such as waving (Crais, 2007). It is imperative to underscore that gestures, regardless of their form or communicative role, fundamentally serve as purposeful communicative acts (Iverson & Thal, 1998). In typically developing children, indicative gestures, designed to initiate communication, tend to manifest around the eighth month of infancy. Conversely, representational gestures, which denote more complex concepts, generally emerge subsequent to the acquisition of multiple indicative gestures (Crais, Douglas, & Campbell, 2004). Moreover, representational gestures, particularly those associated with objects, often coincide with a child's onset of verbal language acquisition (Acredolo & Goodwyn, 1988). Among typically developing children, gestures function as one of the most consistent early indicators of deliberate communication, providing valuable insights into the initial stages of social communication development (Crais et al., 2004). Furthermore, these gestures are pivotal in conveying a child's motivation and competence in early communicative endeavors (Sigman & Ruskin, 1999).

As indicated by Camaioni et al. (2003), substantial differences arise in the use of communicative gestures when comparing children with ASD to their typically developing peers. The literature encapsulates findings that elucidate the inherent challenges faced by children with ASD in the acquisition of gestures. Even as their employment of gestures matures, it predominantly comprises indicative gestures. Within this purview, these children typically tend to

employ imperative gestures, which particularly manifest in actions like reaching for desired objects. However, an importantn deficiency becomes apparent in their utilization of declarative gestures. In other words, they often show such behaviors as directing their attention to an object of interest and subsequently sharing this focus with an adult, which is a phenomenon corroborated by the research of Camaioni et al. (2003), Stone et al. (1997), and Töret and Acarlar (2011).

Children with ASD face difficulties in their utilization of gestures that set them apart not only from typically developing children but also from peers with different developmental disabilities. In this respect, Stone et al. (1997) conducted an investigation which revealed that children with ASD, ranging in age from 27 to 38 months, demonstrated a reduced frequency of communicative gestures when compared to a control group. This control group was carefully matched in terms of chronological age, cognitive development, and expressive vocabulary, consisting of individuals with developmental delays or language disorders. The communicative behaviors exhibited by the children with ASD heavily tended to use requests for objects or activities. More specifically, the study observed that children with ASD employed a higher frequency of request gestures and a lower incidence of declarative gestures when compared to their counterparts in the control group with developmental delays or language disorders. An analysis of the non-verbal communication strategies utilized by children diagnosed with ASD revealed a preference for more elementary forms of interaction. Instead of engaging in intricate, purposeful communicative actions such as pointing to objects, displaying objects, or establishing intentional eye contact, these children typically resorted to rudimentary behaviors like physically guiding an adult's hand. And also, it was observed that children with ASD faced limitations not only in their employment of indicative gestures but also in their use of representational gestures (Wetherby, 2006; Ökcün-Akçamuş, 2016). In the developmental trajectory of children with autism, there was a proclivity towards tactile gestures, exemplified by the act of guiding an adult's hand to obtain objects. Simultaneously, these children encountered difficulties in acquiring social routine gestures that are typically learned through imitation, such as waving, nodding, or employing head movements to express agreement or disagreement with other individuals (Sowden, Perkins & Clegg, 2011).

When investigating research that compares children with ASD to their typically developing and developmentally delayed counterparts in terms of their use of communicative gestures, it becomes clear that the limitations in gestural expression represent a distinguishing feature that separates children with an ASD diagnosis from those following typical developmental processes or experiencing developmental delays. The limitations in gestural communication in children

diagnosed with ASD emerge at an early age, as emphasized in the study of Wetherby et al. (2007). According to the research conducted by Shumway and Wetherby (2009), during the period preceding diagnosis, children with ASD were found to exhibit less frequent behaviors directed towards communicative gestures within the 18-24-month age range in comparison to typically developing and developmentally delayed children. The researchers suggest that deficiencies in gesture usage become evident within the initial two years of life and that the reduced frequency of gestural communication within the 18-24-month timeframe is indicative of a fundamental characteristic of ASD. Moreover, supporting these conclusions, Zwaigenbaum et al. (2005) found that children with ASD demonstrated lower rates of maintaining eye contact and utilizing gestures at the age of 12 months in contrast to children at risk for ASD.

In another study conducted by Colgan et al. (2006), supplementary evidence is provided noting that challenges within the domain of gestural communication emerge during the initial phases of individual development. In their inquiry, Colgan et al. (2006) employed a retrospective analysis of video recordings to investigate the communicative gesture behaviors of children aged 9-12 months. This was a research study encompassing both typically developing children and those diagnosed with ASD. The results of the study showed that children with ASD exhibited a diminished variety of gesture behaviors compared to their typically developing counterparts. In addition, neither the number of gestures employed nor the proportion of the gestures initiated by the children differed significantly between both of the child groups. However, the use of demonstrative gestures with the intention of directing attention for interpretive purposes gained notable importance among children with ASD in the age range of 18-24 months. This shift was attributed to challenges in making eye contact and limitations in gesture utilization in early years of childhood. In the initial stages of ASD, if children encounter difficulties in following another person's gaze and engaging in shared attention with others, it is likely that their ability to employ demonstrative gestures for sharing attention may also be adversely affected (Shumway & Wetherby, 2009).

To sum up briefly, the research outcomes show that children diagnosed with ASD exhibit marked deficiencies in the use of gestures when they are compared to their typically developing peers and those facing developmental delays. Moreover, they experience pronounced limitations in employing demonstrative gestures for interpretive objectives and representational gestures. According to Lund And Kohlmeier (2017), these limitations in gesture usage among children with ASD are believed to have their roots in the early phases of development, which often manifests as certain delays in gesture acquisition. In cases where gestures are acquired, children with ASD tend to predominantly rely on instrumental and tactile gestures, while at the same time facing challenges in utilizing interpretive and representational gestures. The observed restrictions in gestural expression within this group are considered to be of substantial consequence for language and communication skills, as gestures are considered among the earliest indicators of

purposeful communication (Crais et al., 2004) and are intricately linked to language development (Bates et al., 1975; Iverson & Goldin-Meadow, 2005).

2.2. Understanding the Development of Imitation in ASD-Afflicted Children

Imitation represents an early developmental milestone in social communication, characterized by the emulation of observed behaviors (Zaghlawan, 2011; Zentall, 2006). This concept is further subdivided based on the specific body part involved in the imitated action and the temporal aspect of imitation. Within the scholarly discourse, three primary forms of imitation skills are delineated: object imitation, motor imitation, and vocal imitation (Rogers et al., 2003), primarily categorized according to the body part implicated in the imitative behavior. Object imitation is related to the replication of actions entailing the manipulation of physical objects (Stone, Ousley & Littleford, 1997). Contrary to this, motor imitation subsumes the replication of bodily movements without the involvement of physical objects, spanning a wide range of both major and subtle motor actions, along with various gestures. (Stone et al., 1997; Rogers et al., 2003; Zaghlawan, 2011). It is worth noting that Rogers et al. (2003) have specifically delineated oral motor imitations as a unique sub-category of motor imitation. This category involves the replication of actions that pertain to the facial and mouth regions, such as extending the tongue, lateral tongue movement, or simulating a kissing motion. Vocal imitations involve the replication of both meaningful and non-meaningful words and sounds (Zaghlawan, 2011). In terms of the timing of the imitative actions, three distinct categories of imitation skills are discernible: immediate imitation, delayed imitation, and deferred imitation. Immediate imitation is characterized by the simultaneous replication of the observed action, synchronized with the actions of the model. Conversely, delayed imitation entails the reproduction of the observed action shortly after the initial observation. In the case of deferred imitation skills, children replicate actions they had observed long ago, without necessitating recent reminders from the model (Nadel, 2014).

The development of imitation skills in infants is widely acknowledged as a significant milestone with substantial implications for both social and cognitive aspects of their growth (Meltzoff, 1988). Uzgiris (1981) mentioned a strong association between imitation and social interactions, suggesting that during infancy, imitation functions in a dual purpose: comprehending complex observations and fostering mutual social communication. As such, imitation plays a pivotal role in both learning and social interaction in infancy (Nadel, 2006). In addition, the utility of imitations extends beyond infancy, which means lasting throughout one's lifetime (Jones & Herbert, 2006). Imitations performed in the context of social communication

are seen as fundamental building blocks for purposeful communication. This holds true not just for typically developing children but also for individuals facing developmental delays (Nadel et al., 1999).

Imitation emerges in the early stages of development in typically developing children, especially during infancy. Even at birth, infants possess a rudimentary form of representational competence, engaging in the imitation of facial and oral movements (Meltzoff & Moore, 1983). Hulit and Howard (1993) note that within the first 1-4 months of life, infants begin to replicate their own actions that others imitate, and by the months 4 and 8, they progress to reproduce actions they had initially generated spontaneously (as cited in Kuder, 1997). As purposeful communication takes place, children gradually come to understand that others have intentional motives. By the age of 12 months, they commence making judgments about the intentions behind a person's actions, using this insight to determine which aspects of the observed action to imitate (Carpenter, 2006). And on average, deferred imitation skills typically begin to develop around the 18th month of life (Nadel, 2006).

One of the non-verbal social communication deficits observed in children with ASD pertains to the development of imitation skills. Existing literature provides substantial evidence that children with ASD exhibit significant limitations in their ability to imitate when compared to their typically developing peers (Charman et al., 1997; Dawson et al., 1998; Rogers et al., 2003; Stone et al., 1990; Turan & Ökcün-Akçamuş, 2013). Additionally, numerous studies have shown that the imitative performance of children with ASD significantly lags behind that of children with different developmental delays (Charman et al., 1997; Rogers et al., 2003; Stone, Ousley & Littleford, 1997; Turan & Ökcün-Akçamuş, 2013). These limitations in imitation skills, evident in children with ASD, both in relation to typically developing children and those with diverse developmental delays, underscore the limited nature of imitation abilities in individuals with ASD, thus emphasizing it as a prominent characteristic of ASD (Ökcün-Akçamuş, 2016). Charman et al. (1997) conducted a comparative study investigating the imitation abilities of 20-month-old children with ASD, children with developmental delays, and typically developing children. After accounting for differences in non-verbal cognitive age, it was revealed that children with ASD exhibited markedly lower levels of imitation performance in contrast to both typically developing children and children with developmental delays. In a similar vein, Dawson et al. (1998) carried out research where they carefully compared children with ASD, children with Down syndrome, and typically developing children based on receptive language age, communication scores, and chronological age. Their investigation focused on discerning potential distinctions in imitation behaviors among these groups. The findings of their study revealed that children with ASD demonstrated notably poorer performance in both immediate and deferred imitation when compared to the other groups. It is noteworthy that both Charman et al. (1997) and Dawson et al. (1998) evaluated imitation skills by having the children engage in specific

actions involving an object within a controlled environment and subsequently presenting the object to the child for imitation.

Children diagnosed with ASD demonstrate notable limitations in their imitation skills when compared with children experiencing developmental delays, as evidenced by the studies conducted by Rogers et al. (2003) and Turan and Ökcün-Akçamuş (2013). Rogers et al. (2003) examined the imitation development of children aged 26 to 41 months with ASD, comparing their performance to that of typically developing children, children with developmental delays (including those with conditions such as Down syndrome, chromosomal disorders, and general developmental delays), and children with Fragile X syndrome. The findings showed that children with ASD had relatively lower scores in imitation skills when compared to all other groups. Likewise, Stone, Ousley, and Littleford (1997) conducted a study involving children with ASD aged 26 to 36 months. They meticulously compared these children with typically developing peers based on their cognitive age and also with children experiencing developmental delays, considering their cognitive age, chronological age, and expressive language scores. It was noted that children with ASD exhibited markedly inferior performance in imitation when compared to the children having delays in their development. Therefore, the researchers suggested that the observed limitations in the participants' imitation skills might be a situation specific to autism.

The studies conducted by Rogers et al. (2003), Stone, Ousley, and Littleford (1997), and Turan and Ökcün-Akçamuş (2013) all utilized structured imitation procedures. These research endeavors examined various aspects of imitation, including objective imitation skills, motor imitation skills, and oral motor imitation skills. According to the results from these investigations, the children with ASD were found to have limitations across all imitation domains. Particularly significant is the finding by Stone, Ousley, and Littleford (1997) that children with ASD faced more significant challenges in motor imitation skills and non-meaningful object imitations, such as replicating the movements of a toy comb on a table, when compared to meaningful object imitations, such as mimicking the actions of a toy dog on a table. When examining these limitations in imitation skills in relation to the types of imitation, it was found that children with ASD achieved higher scores in objective imitation skills in comparison to motor imitations. However, they encountered more pronounced difficulties in non-meaningful object imitations as opposed to meaningful object imitations.

Considering the spontaneous and structured imitation skills, children with ASD were found to have a lower performance in spontaneous imitation skills when compared to structured imitation skills, as observed in the studies conducted by Ingersoll (2008b) and McDuffie et al

(2007). In his study, Ingersoll (2008b) systematically compared children with ASD to typically developing children in terms of their non-verbal cognitive age. The assessment involved both structured imitation skills observed within a controlled setting and spontaneous imitation skills in natural settings. The results of the study revealed that children with ASD demonstrated lower performance levels in both structured and spontaneous imitation, in contrast to typically developing children. Regarding the performance of children with ASD with respect to the types of imitation, it became clear that they experienced greater challenges in terms of spontaneous imitation skills (Turan & Ökcün-Akçamuş, 2013). In contrast, typically developing children exhibited relatively similar performance levels in both types of imitation.

In summary, research consistently shows that children afflicted with ASD have lower levels of imitation skills when compared to both typically developing children and those experiencing developmental delays. In addition, the difficulties they have in spontaneous imitation skills appear to be particularly ingrained. According to Ingersoll (2008a), imitation skills are considered as an early social communication skill and are seen as essential for the enhancement of social learning (as cited in Nadel, 2006). Considering the early emergence of imitation as a fundamental social communication skill and its close association with language development (Stone, Ousley & Littleford, 1997; Toth et al., 2006), the limitations observed in imitation skills within the context of children with ASD hold significant implications for their language development. It is widely believed that the imitation difficulties encountered by children with ASD constitute one of the primary obstacles to developing effective social communication, fostering social relationships, and facilitating the learning process within these social interactions (Dawson & Galbert, 1986).

2.3. Understanding the Development of Play in Children with ASD-Affected Children

Play is an engaging and enjoyable activity performed for its intrinsic rewards, devoid of external objectives, and willingly undertaken with active participation by those involved, as defined by Garvey (1990). Its multifaceted contributions to children's cognitive, physical, social, and emotional development highlight its significant role in their social development (Ginsburg, 2007). Lifter and Bloom (1998) have articulated that play have two primary functions for children. Firstly, it provides a vehicle, similar to language, for children to externalize and concretize their mental concepts through the use of symbols by functioning as a means of self-expression. Secondly, play serves as a tool for children to comprehend the consequences of their actions, reflect upon their prior knowledge, and gain insights into objects, events, and relationships in their environment, thereby facilitating interpretative functions. In addition to these functions, play also furnishes children with a means to manifest their comprehension of the world surrounding them. The developmental progression of play assumes considerable importance in grasping symbolic meanings, comprehending the functioning of objects, recognizing the repercussions of actions, discerning appropriate behavior in diverse situations, and fostering an understanding of interpersonal relationships (Moor, 2002).

Children with ASD manifest distinctive characteristics in their developmental play patterns, which demonstrate associations with variations in their social, cognitive, and linguistic abilities (Wolfberg, 1994). In a comprehensive examination of play and imitation behaviors within the contexts of ASD, intellectual disabilities, hearing impairments, language disorders, and typically developing children, Stone et al. (1990) indicated that children with ASD exhibited less frequent engagement with toys when compared to the other groups. Moreover, children with ASD displayed diminished proficiency in the appropriate utilization of toys and participation in purposeful play activities, contrasting with their counterparts in the heterogeneous study groups. Researchers have observed that the capacity for imitation and purposeful play behaviors stands as distinctive features distinguishing children with ASD from their peers in other groups, and they have postulated that these constraints in play skills and the development of imitation are specific to ASD. In comparison to typically developing peers, children with ASD may manifest unconventional play preferences, or they may tend to have an intense preoccupation with specific attributes of objects employed in play. Consequently, the play behaviors of children with ASD are typified by their constrained, inflexible, and less imaginative nature (Baranek, 1999; Baranek, Reinhartsen & Wannamaker, 2001).

In a research study examining the use of objects by children diagnosed with ASD, Rowland and Schweigert (2009) observed important deficits in the performance of children with ASD, aged 2 to 5 years, when compared to their typically developing counterparts. Specifically, these children scored lower in areas related to the social use, symbolic use, acquisition of unreachable objects, and functional use of objects, with particular weaknesses observed in the domains of symbolic and social utilization. Furthermore, children with ASD exhibited a heightened incidence of repetitive behaviors in their interactions with objects, a finding corroborated by Richler et al. (2007). In additon, retrospective video analyses have shown that children with ASD, during their early developmental years, displayed a heightened propensity for mouthing objects in contrast to typically developing children (as cited in Baranek, 1999).

In a prominent investigation employing retrospective video recordings, Baranek et al. (2005) compared object play behaviors among children with ASD, typically developing children, and children with developmental delays, all falling within the age range of 9-12 months. The research findings demonstrated no statistically significant differences in the rates of object engagement between children with ASD and the other two groups. Likewise, no marked distinctions were observed in the rates of exploratory play. The research outcomes pointed to the emergence of functional object play behaviors only in typically developing children between the ages of 9-12 months, with such behaviors notably absent in the other two groups. The interactions that children have with objects in their immediate surroundings are indicative of their comprehension of the social world and their ability to manipulate objects in pursuit of desired objectives. These object interaction behaviors involve not only the physical manipulation of objects but also involve knowledge related to object usage, methods for accessing out-of-reach objects, relationships among objects, and the connection between the individual and the object.

Object relationships are most prominently manifested through object play behaviors in typically developing children, and these behaviors play a crucial role in a child's cognitive and social developmen (Rowland and Schweigert, 2009).

To sum up, a comprehensive review of the academic literature highlights that children who receive a diagnosis of ASD confront limitations in their play capabilities from an early stage, with a pronounced deficiency in their proficiency in symbolic play skills, especially in contrast to their typically developing peers and those with developmental delays. Given the well-established connection between symbolic play skills and the progression of language development, as evidenced by studies such as Smith, Miranda, and Zaidman-Zait (2007) and Toth et al. (2006), it is quite likely to suggest that the observed limitations in symbolic play skills among children with ASD may have a substantial impact on their linguistic development and their ability or motivation to engage in social communication.

2.4. Understanding the Development of Joint Attention in ASD-Affected Children

The concept of joint attention, as elucidated by Baldwin (1995), may be succinctly defined as the simultaneous focus of two or more individuals on a common external stimulus. This cognitive capacity typically begins in early infancy, typically emerging around the midpoint of the first year, as infants begin to integrate objects from their immediate environment into their interactions with adults. The induction of infants into involving an external object within their interactions with adults is characterized by three distinct forms: 1) the act of sharing attention, 2) the act of following attention, and 3) the act of directing attention. These behaviors serve as markers denoting the transition from dyadic (involving two parties) interactions to triadic (involving three parties) ones. The salient characteristic of these behaviors is the infant's ability to shift their gaze between the object and the adult, concurrently monitoring the adult's response to the object (Carpenter et al., 1998). Tomasello (1995) postulated that joint attention should not be merely construed as co-observation of the same point by two individuals simultaneously, nor as one individual observing another while the latter interacts with an object. According to Tomasello, within the context of joint attention, the children align their focus of interest with both the object and the adult, while the adults simultaneously align their attention with the same object and the child. This convergence of interests between the child and the adult constitutes the central aspect of joint attention (Ökcün-Akçamuş, 2016). In the milieu of joint attention interactions, the alignment of attention is predicated on the shared understanding that both participants in the interaction are directing their attention toward the same thing. Coordinated attention suggests that the child views the other participant in the interaction not as an inanimate object but as an individual who, much like themselves, is actively involved in specific events within the surrounding environment.

Differences in the use of communicative gestures, especially with respect to the intention of sharing interest or attention towards an object, have been observed in the case of children

diagnosed with ASD as compared to their typically developing counterparts (Camaioni et al., 2003). It can be stated that one of the striking communication deficits in children with ASD stems from difficulties in acquiring joint attention behaviors. These limitations in terms of joint attention skills manifest as disturbances in the use of gestures for sharing experiences, the use of eye contact, and the capacity to redirect one's gaze accordingly (Mundy & Markus, 1997). These disruptions in joint attention skills, involving the use of gestures, serve as an early diagnostic sign of ASD (Thurm, Bishop & Shumway, 2011).

In a similar vein, Dawson et al. (2004) conducted a study that involved a comparison of the social behaviors of children diagnosed with ASD at an average age of 43 months with their mental age-matched peers, comprising typically developing children and those with developmental delays, specifically Down syndrome and developmental delay. The findings of the study indicated that children with ASD had notably lower performance scores across all measured variables in comparison to both typically developing children and those with developmental delays. In particular, children with ASD were found to have significantly fewer instances of initiating and responding to joint attention behaviors in comparison to both typically developing children and the ones with developmental delays. It was a striking result for the researchers to find no significant distinctions regarding joint attention initiation and response behaviors between the children with developmental delays and typically developing children. The study concluded that, taken in isolation, joint attention behaviors effectively distinguished the children with ASD by achieving an 83% accuracy rate in classification.

In addition, a longitudinal research study conducted by Sigman and Ruskin (1999) further indicated that limitations in joint attention behaviors constitute a distinguishing characteristic of individuals with ASD. Their research revealed that individuals with ASD had unique constraints in the initiation and response to joint attention, certain forms of symbolic play, responsiveness to the emotional states of others, and the initiation of interactions with their peers. Based on these findings, the researchers suggested that joint attention behaviors form a distinctive and problematic situation for individuals with ASD by setting them apart from other counterparts in various studies conducted in diverse settings or contexts.

Children diagnosed with ASD exhibit limitations in their capacity to both initiate and respond to joint attention behaviors during the early stages of their development (Lord et al., 2000; Stone, Coonrod & Ousley, 2000). Although the ability to respond to joint attention behaviors is believed to be an important feature in the initial phases of development for children with ASD, the difficulties associated with responding to joint attention tend to get worse as

development progresses (Mundy & Jarrold, 2010). For instance, the research conducted by Mundy, Sigman, and Kasari (1994) suggests that the distinctiveness of joint attention response skills in children with ASD diminishes during the cognitive development stage that occurs between 30 and 36 months. It is known that the Autism Diagnostic Observation Schedule (ADOS) includes criteria for joint attention initiation and response within Module 1, which is consistently employed to evaluate children who do not utilize verbal expression. Module 2, designed for children who employ verbal expression but do not have fluent verbal communication, exclusively involves joint attention initiation criteria (Lord et al., 2000). Unfortunately, limitations in joint attention initiation skills endure as children with ASD continue to mature in terms of both chronological and cognitive age (Leekam, Baron-Cohen, Perrett, Milders & Brown, 1997). In a study conducted by Hobson and Hobson (2007), it was observed that children with ASD, with an average chronological age of 11.5 and an average verbal cognitive age of 6, manifested fewer joint attention initiation behaviors compared to children in distinct disability groups (e.g., those with learning disabilities, intellectual disabilities, and developmental delay) who were matched in relation to their chronological ages and linguistic proficiencies. This observation provides empirical support for the discussion that limitations in joint attention initiation keep remaining in children with ASD as they advance in age, despite certain improvements in their language abilities.

Considering all of these, it is seen that the research findings above provide robust evidence supporting the existence of impediments with regard to joint attention among children diagnosed with ASD. A comprehensive analysis of the available literature makes it clear that these challenges experienced in joint attention are distinctively associated with ASD, which indeed signifies a striking feature of this condition. Within the context of ASD, joint attention functions as an early diagnostic indicator, with both the initiation and response to joint attention behaviors that have considerable diagnostic significance in the early stages of childhood. Interestingly, as children with ASD advance in their developmental processes, it is observable that difficulties in their capacity to respond to joint attention cues tend to improve, but obstacles in initiating joint attention behaviors persist. In light of the understanding that joint attention skills are fundamental components of early social communication (Carpenter et al., 1998) and maintain close relationship with language development (Bono, Daley & Sigman, 2004; Dawson et al., 2004; Toth et al., 2006), it is widely believed that limitations in joint attention skills assume a substantial role in shaping the language and communication development of children diagnosed with ASD.

3. Development of Verbal Language in Children Diagnosed with ASD

In normally developing children, verbal language typically emerges around the age of 12 months, which follows the acquisition of non-verbal social communication skills. This

developmental process marks the transition from the use of sounds and gestures to express communicative intent in the pre-linguistic phase to the utilization of words. These words may be employed either in conjunction with gestures or independently, as observed in the development of early verbal language (Owens, 2012). After acquiring their initial vocabulary, children progress to forming word combinations typically between the ages of 18 to 30 months. Following this, they advance to constructing simple sentences by the age of 30 to 48 months. As the next step, they generally develop the ability to articulate more complex sentences (Tager-Flusberg et al., 2009). However, children diagnosed with ASD confront a variety of difficulties in the development of language and social communication (Tager-Flusberg, 1999). These difficulties have significant variations in language acquisition patterns among individuals with ASD (Kjelgaard & Tager-Flusberg, 2001; Tager-Flusberg et al., 2005). Some individuals with ASD may experience complete absence of speech, whereas others may engage in echolalic speech. In addition, some others may demonstrate verbal language skills similar to those of normally developing children (Owens, Evan-Metz & Haas, 2003; Tager-Flusberg, 1999). This diversity is often linked to the children's cognitive development level and their age at the time of assessment, even though these factors may not be seen as the sole determinants. According to Tager-Flusberg (1999), a close examination of language disorders in children with ASD, when considered from theperspective of individual language components, reveals distinctive characteristics. Given the variability in developmental features across these language components, it is essential to investigate the verbal language development of children with ASD within the framework of these linguistic domains. In this sense, this study delves into the development of such language components as morphosyntactic knowledge, syntax, semantics, and pragmatics in children with ASD. As such, the following sections provide a deeper understanding of the characteristics linked to each of these components in children with ASD.

3.1. Exploring Morphosyntactic Knowledge/Syntax Development in Children with ASD

Morphosyntactic knowledge refers to the comprehension of how words are organized within a sentence (Owens, 2012). It involves an individual's understanding of word structures and grammatical elements, as well as inflections or suffixes. It is known well that words are composed of one or more morphemes, which are the smallest meaningful units in a language. As stated by Owens (2012), morphemes can be classified into two categories: independent and dependent morphemes. Independent morphemes such as "cat," or "door" can function on their own and convey meaning independently. However, dependent morphemes like "-s" or "-ing" lack an intrinsic meaning but assume significance when added to other words by contributing grammatical meaning to the host word. Moreover, syntax governs the rules that determine how

words are organized in a sentence, the overall structure of a sentence, and the arrangement of relationships among words within a particular sentence. Indeed, sentence structure is guided by these syntactic rules, which determine the acceptable and grammatically correct order of words, word groups, subordinate clauses, word classes, and other elements within a sentence. Syntactic rules specify which word orders are linguistically appropriate and which are not in a sentence (p. 28).

As suggested by Kuder (1997), children diagnosed with Specific Language Impairment (SLI) have a number of similarities and differences in terms of their morphosyntactic development when compared to their normally developing peers. Within the scholarly discussion on this research arera, an significant debate is going on about the origins of morphosyntactic structure acquisition in children with SLI, specifically examining whether it should be characterized as a disorder or merely a developmental delay (as cited in Tager-Flusberg et al., 1990). On the other hand, an opposing perspective, as presented by Bartolucci, Pierce, and Streiner (1980), contends that children with SLI face challenges in acquiring specific morphosyntactic structures. Tager-Flusberg et al. (1990) argue that the process of acquiring grammatical components in children with SLI primarily reflects a developmental delay rather than a condition-specific impairment. In order to support their argument, they conducted a longitudinal study in which they compared children with SLI to two control groups: children of similar age and children with comparable mean length of utterance (MLU) but diagnosed with Down syndrome. This comprehensive investigation focused on the developmental process of MLU, vocabulary, and syntactic complexity, as measured by the Index of Productive Syntax, in children aged 12 to 26 months. The research findings obtained from this study indicate that the participants with SLI follow a developmental trajectory similar to that of the participants with Down syndrome, which closely mirrored the linguistic development of typically developing children. Based on these results, researchers suggest that grammatical complexity and vocabulary acquisition should not be considered primary concerns for children with SLI. A striking finding from this research is that the children with an MLU of three or higher have lower syntactic complexity in their spontaneous speech in comparison to the children with Down syndrome. The researchers attribute this situation to the limited use of complex grammatical structures in the spontaneous speech of children with SLI, in spite of an increase in their MLU.

The analysis of grammatical structures in the linguistic output of children diagnosed with Specific Language Impairment (SLI) provides valuable insights into their morphosyntactic development. In a seminal study conducted by Bartolucci et al. (1980), a comprehensive comparative examination was conducted to evaluate the use of grammatical morphemes in English-speaking children with SLI, typically developing children, and children with intellectual disabilities in terms of their nonverbal IQ scores. The research findings showed that English-speaking children with SLI, particularly in their employment of articles (such as "a" and "the"),

auxiliary verbs, conjunctions, past tense markers, third-person singular present tense markers, and present progressive markers, displayed a significantly increased frequency of omissions of these grammatical morphemes in contrast to their typically developing counterparts. However, no statistically significant difference was found between the SLI group and the group with intellectually disabled children. Additionally, the researchers did not find a substantial relationship between the rate of grammatical morpheme omissions and the complexity of syntactic structures within the language output of children with SLI. As a result, they advanced the hypothesis that the omission of grammatical morphemes in children with SLI may not be attributable to a general delay in the overall process of language acquisition but might instead be related to a specific developmental delay within the domain of language (Ökcün-Akçamuş, 2016).

It is indicated that within the group of children diagnosed with SLI, there may be distinct subgroups characterized by variations in their language development (Kjelgaard & Tager-Flusberg, 2001; Roberts, Rice & Tager-Flusberg, 2004). Roberts et al. (2004) conducted an empirical investigation with the aim of exploring potential differences in the use of third-person singular present tense markers (e.g., "says," "does") and past tense markers (e.g., "raked," "played") among children with SLI, ranging from 5 to 15 years of age, within these subgroups of language development. These subgroups were formed on the basis of vocabulary performance, categorizing children with SLI into three distinct categories: those demonstrating vocabulary skills within the typical range, those positioned on the borderline, and those falling within the low range. The results of the study revealed that children with SLI falling into the lowest vocabulary range, similar to their counterparts with specific language impairment, experienced challenges both in the correct usage and the omission of third-person singular present tense markers and past tense markers. In contrast, children classified within the normal vocabulary range were found to have fewer errors and omissions regarding these linguistic markers. Likewise, individuals in the lowest vocabulary group displayed the highest rates of errors and omissions. Particularly, in contrast to children with specific language impairment, instances of echolalia and the repetition of previous responses were observed. This observation allowed the researchers to propose a possible connection between these behaviors and challenges in understanding the task or the intended response. In light of these observations, the researchers hypothesized that certain omissions made by children with SLI may be attributed to their limited understanding of the contextual elements of conversation rather than arising from structural language impairments. As a consequence, they concluded that the underlying causes of these omissions may be intertwined with challenges in the practical application of language knowledge.

In their investigation of the use of tense markers in children with SLI, Bartolucci and Albers (1974) noted that children between the ages of 3 and 6 with SLI demonstrated lower proficiency in tasks related to past tense markers when compared to both intellectually disabled and typically developing children. The researchers stated that this observation may show distinctions in the development of language morphemes in children with SLI compared to the impairments observed in intellectually disabled children. A considerable number of studies reveal a consistent pattern where children with SLI face difficulties in employing past tense markers (Bartolucci et al., 1980; Bartolucci & Albers, 1974; Roberts et al., 2004), and these challenges resemble those observed in children with specific language impairment (Roberts et al., 2004). However, in contrast to the findings from the aforementioned studies, Eigsti, Bennetto, and Dadlani (2007) reported a higher incidence of morpheme omissions in children with developmental language impairment in terms of nonverbal IQ, gender, and receptive vocabulary performance, with no statistically significant distinction observed between children with SLI and typically developing children.

When examining the typical pattern of morpheme errors in children diagnosed with SLI, it is evident that they frequently make errors in the use of pronouns and verb endings (Owens, 1999). The incorrect use of pronouns in children with SLI can be elucidated as a disturbance linked to a facet of language cognition, particularly concerning the shift in roles between the speaker and the listener during conversational interactions (Tager-Flusberg, 2005).

While syntax is generally acknowledged as a comparatively stronger aspect within the linguistic abilities of children with SLI (McGregor et al., 2012), it is significant to know that limitations in syntax development are also evident within this group (Rapin & Dunn, 2003). Children with SLI frequently demonstrate syntactic features that include the construction of relatively simpler sentences and less complex sentence structures relative to their age peers (Owens, 1999). These limitations typically manifest as delays in syntactic development, with syntax not being typically identified as a primary area of concern in the language and communication development of such children (Rapin & Dunn, 2003). The progression of syntactic development in children with SLI is often observed to proceed at a relatively slow pace, and it does not necessarily become more complex in line with their chronological age. Instead, syntactic development appears to be more closely associated with their developmental level (Tager-Flusberg et al., 2005). To further investigate this, Pierce and Bartolucci (1977) conducted a study in which they compared the syntactic competence of children with SLI, who were, on average, around 10 years old, with children diagnosed with intellectual disabilities regarding nonverbal IQ (with an average age of 6 years), and typically developing children.

The research findings show that children diagnosed with SLI got lower scores in syntax when compared to groups of peers with equivalent nonverbal (non-linguistic) cognitive ages.

That is, children with SLI exhibited lower syntax scores in comparison to their nonverbal cognitive ages. The researchers hypothesized that children with SLI follow certain rules in acquiring syntax and morpheme structures but tend to employ less intricate linguistic constructs compared to intellectually disabled and typically developing children with matched nonverbal cognitive ages. As a result, in terms of syntax development, children with SLI display significant delays when compared with their peers who have similar nonverbal cognitive ages (Eigsti et al., 2007).

In their investigation, Eigsti et al. (2007) found that children with SLI, averaging 5 years of age, produced less complex sentences when compared to typically developing children in terms of nonverbal cognitive ages, gender, and receptive vocabulary. Moreover, when children with SLI were compared for chronological age, gender, nonverbal cognitive age, and receptive vocabulary, they still exhibited less complex sentence structures in comparison to children with developmental language impairments. These findings suggest that the delay in syntax development is unrelated to receptive vocabulary. The researchers concluded that these results may indicate a distinct trajectory of syntax development in children with SLI compared to their typically developing peers. In contrast, Weismer et al.(2011), when comparing children with SLI based on their expressive vocabulary and controlling for their nonverbal cognitive abilities, found no differences in sentence complexity when compared to children with language delays. The study participants in this research ranged in age from 22 to 37 months, which is why the comparisons focused on early grammatical structures, specifically sentence forms.

In summary, the existing literature provides two distinct viewpoints regarding the development of morphological knowledge in children with SLI). One perspective argues that children with SLI have a disorder in morphological knowledge (Bartolucci et al., 1980), while the alternative perspective suggests a delay in the acquisition of morphological knowledge (Tager-Flusberg et al., 1990). When examining the facets of language usage and semantics, it becomes clear that children with SLI display relatively proficient progress in morphological knowledge and syntax. However, in comparison to typically developing children, these children exhibit developmental delays in morphological knowledge, particularly in respect to syntactic development.

3.2. Exploring the Development of Semantic Knowledge in Children with ASD

Semantics, the system of rules that govern the meanings of words within a language and their relationships with one another, constitutes a fundamental element of language. It essentially addresses the fundamental question, "What is the intended meaning?" The semantic aspect

involves the set of rules governing the significance and contextual usage of words and word combinations in a sentence (Owens, 2012). As language inherently conveys information, driven by the objective of effective communication, semantics plays a pivotal role in shaping the context and significance of language. Semantic knowledge entails the various components that converge to define a specific word. For instance, while both "girl" and "woman" convey the general idea of being human and female, the term "young" specifically conjures the notion of "girl." Semantic knowledge serves as the linguistic tool for offering appropriate definitions within a given context (Owens et al., 2003). In this sense, the number of words a child is capable of articulating and comprehending represents one of the basic criteria for assessing their proficiency in terms of semantics. However, semantics does not merely concern the quantity of distinct words a child comprehends and employs; it also focuses on the multifaceted meanings of words contingent upon the context and application. Words can possess intricate, polysemous, abstract, or metaphorical meanings based on the context they are used (Hedge & Maul, 2006).

Research into the development of semantic knowledge in children with SLI has revealed that these children face certain limitations in terms of the (Kuder, 1997). Some of the limitations observed in the components of semantic knowledge in children with SLI include difficulties in word retrieval (Owens, 1999) and the use of invented or non-meaningful words (Wilkinson, 1998). Investigations into the development of semantic knowledge in children with SLI have provided a range of findings. Some of these studies suggest that, in the early stages of vocabulary acquisition, children with SLI follow a developmental trajectory similar to their typically developing peers (Charman, Drew Baird & Baird, 2003; Luyster, Lopez & Lord, 2007). However, it has also been identified that there are delays in the developmental process among these children (Charman et al., 2003). For example, in a study that compared typically developing children, children with SLI, and children with developmental delay, Luyster et al. (2007) discovered that, on average, 30-month-old children with SLI displayed a similar receptive and expressive vocabulary profile to typically developing and developmentally delayed children who were compared in terms of non-verbal cognitive age. Similarly, Charman et al. (2003) identified delays in vocabulary development in children with SLI when compared to their typically developing counterparts (as cited in Ökcün- Akçamuş, 2016).

Typically developing children begin to exhibit early signs of language comprehension by the end of their first year. In contrast, children with SLI do not demonstrate these signs of language comprehension until their non-verbal cognitive age reaches 2.6 years. Researchers have noted that there are more pronounced delays in the understanding of word meanings compared to word production, which is considered atypical (Eigsti et al., 2007). It has been suggested that the receptive vocabulary of children with SLI in their early years (3-6 years) is relatively strong in terms of syntax. When assessing the receptive language performance of children with SLI, taking into account their non-verbal cognitive age and gender in a free play setting, they produce a

similar variety of words as typically developing children. Likewise, in comparison to children with delayed language acquisition, children with SLI were found to utilize similar word categories to the reference group (Weismer et al., 2011).

Research in the field has not only focused on the examination of vocabulary acquisition in children with SLI as compared to typically developing and developmentally delayed children but has also investigated the specific lexical categories employed by these children. Children with SLI show limitations in their utilization of certain word categories within their lexicon (Tager-Flusberg et al., 2005). In comparison to their typically developing peers, children with SLI particularly demonstrate constraints in employing verbs that express mental states, such as "know," "think," "remember," and others (Tager-Flusberg, 1992). In addition, they use fewer words related to mental states and emotions when compared to children with Down syndrome. A study conducted by Tager-Flusberg (1991) involved children with SLI, compared by their non-verbal cognitive age to typically developing and developmentally delayed children, who participated in two memory experiments. In the first experiment, a recall test was administered for lists of words that were either semantically related or unrelated. Children with SLI exhibited less effective recall of the related word lists than the control group. In the second experiment, a test was conducted to retrieve words that had previously been forgotten by using rhyme (phonological similarity) and contextual cues. In this process, no significant difference was observed between children with SLI and the control group. This research suggests that children with SLI may experience cognitive limitations related to facilitating cued recall for stored information and may not be able to utilize their linguistic knowledge in this process. Researchers have proposed that these memory storage difficulties may be linked to difficulties in the development of theory of mind.

In a longitudinal study conducted by Tager-Flusberg (1992), the language development of children with SLI and children with Down syndrome, compared by their chronological age and language performance, was examined between the ages of 3 and 7. This study involved the collection of language samples, with a specific focus on the use of mental terms that encompass expressions of cognitive states. The results of the study revealed that children with SLI face limitations in using expressions related to cognitive processes, particularly terms like "know," "think," "remember," and "pretend." While the vocabulary of children with SLI is generally considered a relatively strong aspect of their language development, it is suggested that the acquisition of words signifying mental states may be an area where they encounter specific limitations (Tager-Flusberg et al., 2005; Ziatas, Durkin & Pratt, 1998).

Children diagnosed with SLI have the capacity to comprehend and employ words that fall within the same categories as those used by typically developing children. However, their use of words may exhibit distinctive characteristics when compared to their typically developing counterparts (Tager-Flusberg et al., 2005). After the initiation of word acquisition in children with SLI, one can observe the use of fabricated words and word combinations that lack appropriate contextual relevance, often referred to as "nonsense words." In addition, idiosyncratic usage patterns, such as the repetitive use of contextually inappropriate words and word combinations (referred to as echolalia), may be evident. The frequency and persistence of these unconventional usages distinguish children with SLI from other groups. It is suggested that these atypical usages may not be directly linked to symbolic or conceptual development. When it comes to children with SLI, the difficulties typically observed do not center on the association of words with concepts and the retention of these concepts in memory. Instead, these challenges become evident during the application of conceptual and symbolic knowledge in practical tasks (Wilkinson, 1998).

In summary, children with SLI undergo a vocabulary development process similar to that of typically developing children, but with observed delays in word acquisition. Within the semantic knowledge component of vocabulary development, children with SLI may exhibit distinctive characteristics such as the use of meaningless words and word invention (Wilkinson, 1998). Research in the literature suggests that one of the challenges faced by children with SLI in the semantic knowledge component is the limited use of expressions related to mental states. Specifically, the findings support that children with SLI have difficulties in employing mental terms that convey cognitive states (Tager-Flusberg et al., 2005). Wilkinson (1998) argued that when considering the development of semantic knowledge in children with SLI, these children do not necessarily struggle with associating words with concepts or with the storage and organization of concepts in memory. Instead, Wilkinson proposed that children with SLI encounter difficulties in the practical application of conceptual or symbolic knowledge (words) in functional tasks. The following section will discuss the usage knowledge component in children with SLI, providing insights into the developmental characteristics related to the functional use of language.

3.3. Exploring the Development of Pragmatic Knowledge in Children with ASD

Usage knowledge or pragmatics involves the social dimension of language utilization, as noted by Owens (2012) and Wilkinson (1998). It refers to the communicative purpose or intent underlying actions expressed through words or gestures, aimed at facilitating or achieving specific objectives. In the absence of a communicative goal, the other aspects of language lose their significance, as emphasized by Westby (2014). Usage knowledge is primarily concerned with the practical application of language in social contexts, with a focus on its functional aspects

rather than its structural properties. When individuals engage in social conversations, a range of elements related to usage knowledge becomes evident. These include initiating conversations, taking conversational turns, sustaining topics during discussions, changing subjects, managing speech, addressing communication breakdowns, responding to requests for clarification, employing appropriate words in context, and narrating personal experiences and events (Hedge & Maul, 2006).

A fundamental characteristic of language development in children diagnosed with SLI is the presence of limitations in the area of usage knowledge, as evidenced by research conducted by Lord and Paul (1997) and Wilkinson (1998). Deficiencies within the usage knowledge component in children with SLI are related with constraints in various aspects of their social communication abilities (Wilkinson, 1998; Kuder, 1997), and these limitations are also considered as diagnostic criteria (Hedge & Maul, 2006). Children with SLI face difficulties in multiple dimensions of interactive conversations and adherence to conversational norms related to usage knowledge. These challenges include difficulties in taking conversational turns, selecting appropriate discussion topics, contributing contextually relevant information to conversations (Wilkinson, 1998), and maintaining continuity in conversation topics (Tager-Flusberg, 1997; Tager-Flusberg & Anderson, 1991).

In a simiar vein, additional deficits linked to usage knowledge in children with SLI include struggles in initiating conversation topics, limitations in providing explanations when required during discussions, and the use of sentences that lack contextual appropriateness. These behaviors are recognized as further manifestations of usage knowledge deficits in children with SLI (Hedge & Maul, 2006). It is also important to acknowledge that these deficits in usage knowledge vary across a significant number of children with Specific Language Impairment (SLI), affecting not only those with limited speech abilities but also those with relatively proficient speech skills (Wilkinson, 1998). Additionally, the unconventional language usages discussed within the context of the semantic knowledge component, such as word invention and delayed echolalia, can also be considered as issues related with the usage knowledge component (Tager-Flusberg et al., 2005).

Tager-Flusberg and Anderson's study (1991) involved a comparison of language development in children with SLI and children with Down syndrome, considering their language proficiency and chronological age. The findings revealed that during the early phases of language development, interactions between children with SLI and their mothers closely resembled those of children with Down syndrome and typically developing children. However, distinctions

became evident as language development progressed, especically in terms of usage knowledge. The researchers observed that when children's mean length of utterance (MLU) was below 2.0, children with SLI displayed conversational turn-taking skills akin to those of children with Down syndrome. This phenomenon was attributed to the notion that, during the initial stages of acquiring verbal communication, children with SLI did not manifest a unique deficit in conversational abilities, particularly in familiar contexts with their mothers. In contrast, in the later stages of language development, when MLU surpassed 2.0 and children advanced to the stages of constructing sentences, differences between the groups emerged, particularly in aspects related to usage knowledge.

In this sense, Tager-Flusberg and Anderson suggested that as children with SLI developed the formal components of language, there were no distinct differences observed in their conversational skills when compared to typically developing children and those with Down syndrome. It was also noteworthy to see that these differences were prominent in the strategies employed to maintain conversations with others. In other words, the children with SLI had difficulties in maintaining conversations, introducing new information to prolong discussions, and initiating fresh conversation topics. However, despite their changing language skills enabling the utilization of more advanced conversational techniques, they predominantly relied on simpler strategies, such as repeating familiar conversational routines (e.g., greetings), echoing words, and providing simple responses to questions during their interactions. Regarding this, the researchers stated that there was a direct link between these conversational deficits and the development of theory of mind.

It is well known that conversational skills and usage knowledge involve an understanding of the structural aspects of language and how to employ these structures in social interactions (Eigsti et al., 2011). Children diagnosed with Specific Language Impairment (SLI) have limitations in utilizing language for initiating social interactions, seeking information, acknowledging the listener, and making inferences (Tager-Flusberg et al., 2005). In a study conducted by Ziatas, Durkin, and Pratt (2003), a comparison was made between the verbal language usage of children with SLI, typically developing children, and those with specific language impairment by gender and verbal cognitive age. The results of the study revealed that children with SLI tended to use more labeling sentences (e.g., "This is a table") and used explanatory expressions less frequently. In situations where context was relevant, children with SLI generated event explanation sentences less frequently compared to the control groups (e.g., "Now he is coming"). They were also found to display reduced use of mental state expressions (e.g., "I know what to say"). The analysis further demonstrated that children with SLI employed expressions related to their own and others' thoughts and beliefs less frequently, with their sentences primarily consisting of imperative expressions. Additional characteristics associated with usage knowledge in children with SLI included a greater frequency of non-contributory

sentences during conversations compared to typically developing and developmentally delayed children. Children with SLI were also found to repeat their own sentences or those of their conversational partners more frequently and exhibited tendencies to not respond to or ignore questions directed at them, as compared to the control groups.

In children diagnosed with SLI, it is frequently observed that they tend to provide responses during conversations that are either unresponsive or irrelevant, and they also exhibit the use of echolalic language (Eales, 1993; Roberts et al., 2004). Echolalia in children with SLI can take the form of either immediately repeating heard words or phrases or delaying such repetitions (Tager-Flusberg et al., 2005). While immediate or delayed echolalia is a characteristic often encountered in the early stages of language development in typically developing children, it tends to persist for a longer duration in children with SLI when compared to their typically developing peers (Eigsti et al., 2007).

Schaeffer et al. (2023) have proposed that echolalic behavior in children with SLI has a communicative function rather than being a meaningless or inappropriate conduct. To this end, they conducted an examination of the interactive context of immediate echolalia in children with SLI and identified seven distinct purposes for which these children used immediate echolalia. Immediate echolalia in children with SLI was observed to contribute to communicative functions in such ways as facilitating turn-taking in conversation, asserting themselves, self-regulation, making requests, and providing positive responses (as cited in Ökcün-Akçamuş, 2016). Children employed echolalia without a clear focus, particularly in situations involving high arousal emotions like fear or pain, for turn-taking in conversation, to label object actions or situations, to self-regulate their actions, to confirm previously spoken words, and to express their requests. As indicated by Ryan, Roberts, and Beamish (2022), echolalia emerges as an initial form of speech in the early stages of speech development in children with SLI. The use of immediate echolalia as a language strategy can be considered as a means by which children with SLI enhance the development of more complex language forms, which ultimately promotes their overall communication development (Vogindroukas- et al., 2022).

Delayed echolalia in children with SLI often functions as a means of recreating specific word-associated scenarios, similar to a child mimicking the phrase "no problem" while experiencing a falling scenario. The use of echolalia in children with SLI is considered to have various functions such as communicative purposes, a means of retaining information, or a familiar verbal routine (Kuder, 1997; Eigsti et al., 2007). Research investigating the relationship between language comprehension and echolalia, as conducted by Roberts (1989), found that as

language comprehension skills improved in children with SLI, the frequency of echolalic language decreased. Further studies examining the interplay between echolalia and language development in children with SLI also suggest that echolalia tends to decrease as children's language competencies progress (Howlin, 1982; McEvoy et al., 1988). Tager-Flusberg and Calkins (1990) conducted a study in which they observed that children with SLI, in the early stages of language development, utilized more echolalia and scripted expressions, with a subsequent reduction in usage as their language development advanced. Within the same study, children with SLI were found to produce spontaneous phrases containing more intricate linguistic structures as compared to those including echolalia. As a result, it was suggested that echolalia did not significantly contribute to the acquisition of complex linguistic structures. Based on these findings, it can be inferred that the use of echolalia in children with SLI has a communicative function and represents a transitional phase in their language development.

In children diagnosed with SLI, the pragmatic component of their linguistic development exhibits important developmental changes in certain aspects, while other aspects remain relatively constant. These changes are closely connected to the child's progression in social and communicative development, through which secific elements tend to change as the child's social behavior matures. However, particular pragmatic deficits, such as difficulties in interpreting information or introducing new content into conversations, tend to persist. These variances in language use can be ascribed to the varying communication requirements encountered in different age-related contexts, each of which necessitates distinct competencies. Therefore, when evaluating and interpreting the language use of children with SLI, it is significant to take into account various factors, including the expectations placed on the individual, the opportunities they are provided with, and their typical communication patterns (Tager-Flusberg et al., 2005). It is clear that the deficits in pragmatic component that these children experience not only hinder their capacity to establish effective communication, engage in positive social interactions, and cultivate social relationships but also give rise to misunderstandings in their social exchanges (Suh et al., 2014).

To sum up, language usage or pragmatic-related deficits represent a noticeable characteristic among children with SLI (Gladfelter & VanZuiden, 2020). These deficits are an integral component of the diagnostic criteria for SLI (Hedge & Maul, 2006). These deficits often manifest initially as early non-verbal impediments to social communication during the pre-verbal stages, including difficulties with joint attention and gestures. As verbal language development advances, challenges related to functional language use become salient in such cases as initiating new conversation topics, generating contextually appropriate speech during conversations, and addressing communication breakdowns (Pruccoli, 2021; Purnama & Dewi, 2022).

4. Conclusion and Suggestions

Difficulties experienced in language and communication constitute a fundamental diagnostic criterion for Autism Spectrum Disorder (ASD) and hold a substantial role in assessing the severity of ASD in individuals (APA, 2022). Various impairments in language and communication skills typically begin to manifest during the early developmental stages in children with ASD, which can influence various aspects of their overall development to a considerable extent (Landa, 2007; Andrés-Roqueta & Katsos, 2020). Therefore, investigating the language and communication skills of children with ASD is a significant focus in both theoretical and practical research. In particular, there is extensive scholarly debate regarding the factors that result in the varying degrees of language deficits or delays observed in children with ASD, which can range from the absence of verbal or oral language development in some individuals to its presence in others. (Tager-Flusberg et al., 2005; Boyle, McNaughton & Chapin, 2019). In this respect, this comprehensive review study compiles research findings related to the developmental characteristics of non-verbal social communication skills in the preverbal phase, as well as the developmental attributes of various language components, which includes phonological knowledge, syntax, semantic knowledge, and language use, during the verbal language phase in children with ASD or SLI.

Based on the research in the field, it is understood that communication difficulties begin to manifest in children with ASD as early as in the preverbal phase of development. During this stage, children with ASD often exhibit limitations in their non-verbal social communication abilities, which include activities such as imitation, joint attention, gestural communication, and play skills. These constraints in non-verbal social communication during the preverbal period are closely related to the language difficulties experienced by these children. At this point, the common view is that the non-verbal social communication skills acquired in the preverbal phase serve as indicators to the subsequent development of verbal language (Bruner, 1975; Carpenter et al., 1998; Tomasello, 2003). This perspective finds substantial support in numerous research findings, illustrating the link between preverbal communication skills and language development in children with ASD (e.g., Bono et al., 2004; Toth et al., 2006; Ökcün-Akçamuş, 2015).

In light of these insights, when assessing the language and communication competencies of preverbal children with ASD who lack expressive verbal or oral communication skills, it becomes imperative to scrutinize the child's non-verbal intentional communication behaviors. Intentional communication, in this context, refers to purposeful interaction and communication with an adult that includes sounds and gestures (Levinson et al., 2020; Silleresi et al., 2020). According to Tomasello (2003), the foundation for a child's first words lies in their preverbal intentional communication behaviors. The acquisition of a child's initial words is based on such

fundamental skills as shared attention, comprehension of intentions, and imitation. However, the studies reviewed in this research also underscore that children with ASD exhibit syndrome-specific deficits and delays in non-verbal social communication skills. Hence, the assessment of non-verbal intentional communication behaviors in preverbal children with ASD is believed to provide comprehensive insights into their communication proficiencies as well as supportive guidance for the formulation of appropriate intervention strategies.

In line with this, research has provided substantial evidence that interventions aimed at enhancing preverbal social communication skills have a positive impact on both communication and linguistic skills in children with ASD. Therefore, when there are limitations in the non-verbal social communication skills of preverbal children with ASD, improving these skills is deemed a fundamental prerequisite before necessarily initiating a number of interventions with regard to verbal language development. (Cardillo et al., 2021).

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