

The Criticality of Nonverbal Communication in Language Development: Evidences from Autism Spectrum Disorder (ASD)

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Abstract

Nonverbal communication is an inalienable aspect of human interactions, so much so that experts are increasingly appreciating the fact that it is the dominant element of communication. In spite of this, the role it plays in language developments has not received adequate scholarly attention. Scholars have extensively studied nonverbal communication in toddlers, but somehow, the role it plays as concomitant aspect of how toddlers acquire language has not been adequately studied. Indeed, existing standard paradigms of the language acquisition process do not factor in nonverbal communication. This is the gap this article seeks to bridge. The article achieves this by drawing attention to the fact that the absence of certain nonverbal communicative behaviour among autistic children limits or out rightly mars their language development trajectory. This is taken as the critical evidence that such nonverbal behaviours are germane to language acquisition. This article goes on to explore nonverbal communicative behavior among toddlers, pointing out some critical age-matched tendencies which could form the basis of a new composite language development paradigm which adequately maps the complementary progress of both verbal and nonverbal communication in toddlers. This is critical for a better understanding of language development.

Introduction

The dominant perspective in describing the process of language development is to identify what is often referred to as milestone of acquisition which include the crying and cooing stage, the babbling stage, the stage of holophrases, the two-word stage, the telegraphic stage and the stage of full sentence construction. Clearly, the focus of this paradigm is largely on linguistic elements. This perhaps reflects the fact that academic discussions of language development in children have generally not adequately factored in the concomitant roles of non-linguistic communication. Yet, language does not serve us in isolation. Indeed, it has been argued that less than a third of human communication occur via the verbal channel (O' Rourke 2004). This should naturally suggest that language development in children cannot occur in isolation of the development of capacity to engage in nonverbal communication. Yet, this dimension of communication somehow does no receive attention commensurate with its significance in descriptions of the language development process in children. For example, studies such as Luinge, Post, Wit, and Goorhuis-Brouwer, (2006) typically focus on linguistic inputs and outputs in the description of language development in children and does not clearly reckon with preverbal or non-linguistic communication except crying and cooing which are vocal elements, despite the fact that they explore several general, specific and even minute details of language development in toddlers, using impressive psychometrics. It is amazing that such a detailed report leaves out the critical factor of nonverbal communication. This article is an intervention to address this kind of imbalance. This current research seeks

to highlight the role of nonverbal communication as a primary support platform for language acquisition, so that more scholars would be sensitized accordingly. Hopefully, this study will enrich future research and descriptions of child language development.

As a way of clearly highlighting the imperative of nonverbal communication, this article zeroes in on the known language development challenges of autistic children (as espoused in Eigsti, Marchena, Schuh, and Kelley, 2011; NIMH, 2023) and draws attention to how deficits in their nonverbal behavior often fundamentally disrupt their language acquisition trajectory. This is done to highlight and buttress that fact that without robust engagements with nonverbal communication elements at the earliest stages, the development of language skills will be heavily impaired. This imperative necessitates a considerable exploration of relevant aspects of Autism Spectrum Disorder (ASD), and nonverbal communication as a whole.

This article does not lay claim to being an original source of knowledge about nonverbal communication in children. Indeed, a number of research works (referenced in subsequent sections) contain such information. This missing gap is the fact that the available knowledge is often not integrated into descriptions of the milestones of language acquisition/development. This missing gap, one must reiterate, is the challenge addressed in this article.

Nonverbal Communication in Perspective

All non-linguistic means by which messages are communicated come under the term nonverbal communication. Emphasis in this article is however placed on those elements of nonverbal communication that are associated with the human body, and are often casually referred to as body language. These would include a person's physical behavior, appearance, facial expressions, posture, touch, vocal cues, hand gestures and most significantly eye contact. These elements are integral indispensable part of human interaction, functioning to perform specific roles. Dickson and Hargie (2003) cited in Eunson (2012) identified the following functions of nonverbal communication. They:

- replace verbal communication where speaking may not be inappropriate
- complement verbal communication
- modify speech
- contradict or clarify what is spoken, consciously or unconsciously
- regulate turn taking
- display emotions and attitudes
- negotiate relationships in respect, dominance, control and so on
- convey personal and social identity
- establish social contexts.

These body based communicative elements are basic to human nature and are thus deemed to be primarily biologically driven albeit with cultural colourations which are engendered by environmental peculiarities. As such, nonverbal communication is an interface between biology and culture. (Segerastrale and Moinar (1997). Eunson (2012) attests to the fact that perspectives that uphold the biological foundations of body based nonverbal communication abound in the literature on nonverbal

communication, particularly among evolutionary Biologists influenced by the pioneering work of Darwin in his 1872 study 'The expression of Emotions in Man and Animals.' The implication of this is that nonverbal communication is primarily the essential instinctive mode of communication and interaction between humans, including infants. These nonverbal cues are therefore natural devices for conveying needs, emotions, and intentions effectively.

Body-based and vocal nonverbal elements are of different types as variously identified in Eunson (2012), Park (2013), Halberstadt and Casreo (2013), Wahyuni (2017), and Rochmah, Swandhina and Mualana (2019), who posit that they are fundamental to communication, regardless of the critical role of language. Facial expressions are known to reveal much of our emotions. Smiles, grins, grimaces, face placidity, frowns and so on reveal our joy, happiness, sorrows, anger and other emotions. Eye contacts are critical toward establishing states of communication between humans, including even normal toddlers. Apart from the general communication connections it establishes, diverse manifestations of eye contact such as direct gaze and averted gaze have specific meanings in different cultures (Eunson, 2012). In like manner gestures of different types could convey several meanings in different cultures, ranging from approval, disapproval, anger, affection and so on. The same goes for body posture and distance (proxemics) which could signal respect, disrespect, approval, rudeness and so on depending on the culture.

As a normal child develops, the capacity to communicate also develops. But while the development of linguistic capabilities often receives huge attention and is often clearly mapped into established developmental milestones, the development of nonverbal communication capabilities usually does not receive adequate attention. Yet, the very fact that these two classes of communication channels are intertwined suggests that they must certainly develop together. In this regard, it is necessary to provide an overview of how nonverbal communication manifests in language development.

ASD in perspective

ASD is a neurodevelopmental condition characterized by challenges in social interaction, and communication. It also often involves marked engagement in needless and abnormal repetitive behaviors. Although autism can be diagnosed at any age, it is often described as a “developmental disorder” because symptoms generally appear in the first two years of life and generally manifest in the form of challenges with communicative and interactive tendencies that are supposed to flow naturally. ASD patients also manifest several other traits which will be subsequently itemised. Autism is known as a “spectrum” disorder because there is a wide range of possibilities in the extent and severity of the symptoms.

The American National Institute for Mental Health (NIMH) in one of its bulletins highlights some very current perspectives on the symptoms of ASD (NIMH, 2023). It posits that ASD, which affects people of all genders, races, ethnicities, and economic backgrounds, is often characterized by symptoms which include:

1. making little eye contact and paying little attention to others when they are talking.

2. showing little drive in sharing interest, emotion, or enjoyment of objects or activities'
3. lacking the tendency to engage in pointing at objects
4. making little or no responses to the mention of their names or other verbal or nonverbal attempts to gain their attention
5. exhibiting deficiencies in engaging in conversational
6. insensitiveness to other people's moods or disposition to ones own interest
7. displaying facial expressions, movements, and gestures that are inconsistent with the context of communication
8. having strange voice tone
9. having trouble understanding another person's point of view or being unable to predict or understand other people's actions
10. inability to adjust behaviors to prevailing social contexts
11. finding it hard to play, interact with others or in make friends
12. restrictive or repetitive behaviors may such as repeating words or phrases, numbers, or showing an interest only in specific topics, moving objects or parts of objects as well as exhibiting distress with changes in routine.
13. being generally insensitive than other people to sensory input, such as light, sound, clothing, or temperature
14. having uncanny abilities in learning details and remembering information for long, as well as possessing strong visual, auditory, mathematical, scientific and artistic skills

In addition to highlighting the symptoms listed above, it is perhaps pertinent to provide insights into how health care and social services provider try to mitigate these challenges. This will enrich our understanding of the challenges the experts consider to be most germane. Clearly, the diverse nature of the challenges of ASD naturally suggests that treatment must be equally diverse and multifaceted. The US NIMH provides an overview of these as itemized in NIMH bulletin of 2023. Treatment often range from the use of medication (to control irritability, aggression, repetitive behavior, hyperactivity, attention problems, anxiety and depression), to behavioral, psychological, and educational interventions. The latter often involve building social and communicative skills, and of course developing language skills.

The emphasis of care providers on building social and communicative skills reflect the fact that ASD challenges relating to deficiencies in preverbal interaction and communication are usually critical, though they occur in varying degrees of intensity.

Deficits in Nonverbal Communicative Behaviour in ASD and Language Development Challenges

It is perhaps necessary to specifically highlight how the above features of ASD directly impinge on language acquisition. As a prelude though, one must reiterate the previously stated fact that ASD, being a wide spectrum of diverse symptoms, may not affect all sufferers in the same way. Indeed, all of them may not necessarily experience language difficulties. Some studies have suggested that the tendency of some autistic children to demonstrate uncanny abilities in some functions have occasionally manifested in some specific language skills. However, very many of

them do have language and communication challenges, so much so that a scholar like Scovel (2008) clearly establishes a connection between language acquisition difficulties to ASD symptoms, stating that “because this condition creates a lack of social interaction and early communicative bonding, the autistic child quickly lags behind in achieving the natural milestones of speech production, and within a year or two the significance of the disease becomes conspicuous” (p.84) The fact is that for the overwhelming majority of cases of ASD, language and communication challenges are the most outstanding clinical presentations. As Eigsti, Marchena, Schuh, and Kelley (2011) posit “language and communicative difficulties are of central importance in ASD. Many children with ASD are initially referred for evaluation because of parents’ concerns about delayed language milestones.” (682)

Research such as Rochmah, Swandhina and Mualana (2019) indicate that nonverbal communication serves as a foundation for language acquisition in normal developing children. Toddlers learn to communicate through gestures, facial expressions, and ‘body language’ before they start using words. In this way, connecting with others and conveying messages become a routine behavior which is eventually consummated in the acquisition of language.

According to Halberstadt, Parker and Castro (2013), a developing child’s ability to receive messages from cues such as faces, gestures, and vocalizations commences in the first year of life, as infants begin to observe facial features as early as one month of age. They take note of features that are unique to facial changes, and develop the ability to understand differences between faces with different expressions. By the time they are three months old, infants can differentiate between smiling and frowning expressions, as they indicate happiness, sadness and so on, particularly with respect to their mothers. In addition, they are often able to recognize the associated paralinguistic features in voice tone and pitch. However, they may sometimes struggle to distinguish between facial expressions indicating surprise and fear.

These and many other issues are clear indications that nonverbal elements are integral parts of the process by which a child learns to communicate with others. Indeed, they represent the earliest foundations of communication behavior, established and working before the more complex verbal communication is fully developed. These are so critical in toddlers that preschool educators often have to understand and engage them to achieve better learning outcomes (Parks. 2013, Wahyuni; 2017).

For example, it is quite easy to imagine the difficulty a child who does not engage in eye contact would have developing a healthy quest to receive messages from other people and transmit messages to others, when such a child had consistently missed the huge volume of information that is often available via eye contact and facial gestures, as espoused in Halberstadt, Parker and Castro (2013). To further exemplify the effects of ASD associated behavior on language, one may zero in on the typical lack of interest in other people’s needs, lack of joint attention and shared intentionality. These are crucial precursors to language development as Tenenbaum, Amso, Abar and Sheinkopf (2014) observe by positing that “prior research has shown that joint attention abilities are predictive of language in children with autism... and has motivated interventions that target joint attention as a way to support improved language outcomes.” (p.7) Joint attention and shared

intentionality refer to the ability of a child to intuitively figure out the fact that in any given communication context, s/he is a participant or collaborator in the activities, and that s/he is operating in synchrony with others with whom there are shared objectives and similar or common intentions. The child must understand that role sharing and complementary actions are inherent aspects of mutual interactions. Autistic children however often display deficiency in these crucial cooperative communication behavior. This naturally douses any desire to reach out and connect with people, and of course limits any attempt to master the critical means of doing so, which is language. Also the dearth of hand pointing behavior among children with ASD could be symptomatic of inadequate attention to all important objects in the immediate environment. This, one can easily imagine, could adversely affect the onset of object identification and naming, which is important at the stage of holophrases. These and many more limitations in the ASD affected child are complicated by their insensitivity to communication contexts, poor responses to verbal and nonverbal communicative stimuli and general deficiencies in interactive behavior. In summary, these challenges can hinder the ability of children with ASD to develop language skills.

The deduction from this is that since deficiencies in nonverbal communicative behavior can impinge so heavily on language acquisition because they are essential precursors, they must be considered to be integral to language development. It is therefore important for scholars to begin to clearly factor the relevant elements into our discussions and mappings of the language acquisition milestones and trajectories. At this stage, it is perhaps necessary reiterate the fact that sensitising scholars to this imperative is indeed the objective of this article.

Integrating Nonverbal Communication into Paradigms of Language Development

At this point, some of the previously stated features of nonverbal communicative behavior of toddlers are reiterated along with further details. Here, however, the focus is to integrate them into a standard paradigm of the language development process. As previously stated, paradigms of language development often interrogate the stages of crying and cooing, babbling, holophrases, two word, and the telegraphic speech. Of these, only crying and cooing involve nonlinguistic communication, while babbling (though involving speech sounds) does not communicate anything because it not structured systematically according to language rules. The reliance of this paradigm may have been influenced by the perspectives of Roger Brown which he espoused in Brown (1973), as well as some other works. Whatever the case may be, the premise of this article is that in elucidating this paradigm, it is important to factor in the place of nonverbal elements particularly those elements that are either precursors or corollaries of the verbal elements. The elements to be so built in are those proved to be critical to language development because autistic children (who exhibit clear deficits in these elements) often drastically fail to meet required language acquisition standards. The basic parameters of standard language development paradigms remain relevant. However, it is necessary to come up with a more composite description that countenances nonverbal elements.

The general picture of what this article suggests is presented in tabular form, followed by explanations.

Table: A Composite Language Development Paradigm

Stages	Nonverbal Elements	Verbal Elements
Preverbal stage 0-6moths	Vocal elements (Crying and Cooing), non-vocal elements (commencement of eye contact and recognition of basic expressions, and joint attention)	Nil
Semi verbal stage 6-9 months	Eye contact, recognition of basic facial expressions, joint attention and social referencing.	Babbling (non-systematic output of diverse speech sounds, progressively narrowing down to, and acquiring rhythms of languages in the immediate environment)
Verbal/nonverbal complementarity stage 1 9-18 months	Imperative and declarative hand pointing along with incremental complexity in other gestural behaviour.	This involves the use of single words as complete utterances.
Verbal/nonverbal complementarity Stage 2 18-24 months	Combination of hand pointing with words, incremental gestural and postural communicative behaviour.	The use of two word combination as complete sentences
Verbal/nonverbal complementarity Stage 3 24-30 months	Incremental engagement in gestural and postural communicative behaviour.	Use of incomplete sentences often missing grammatical words
Verbal/nonverbal complementarity in full sentences >30 months	Adult-like engagement in gestural and postural communicative behaviour.	Use of grammatically complete sentences

A child's first means of communication are the instinctive behaviours of crying and cooing. While the child engages primarily with caregivers via these, eye or mutual gaze, which is probably the most critical nonverbal communication element, begin to develop. In the word of Farroni, Csibra, Simion and Johnson (2002) "mutual gaze (eye contact) provides the main mode of establishing a communicative context between humans" (p. 9602). This means that it serves as the foundation upon which human communication is built. The trajectory of its development must therefore be interrogated and discussed in any paradigm of language development as presented in the above table.

It is important to note that normal human babies are able to engage in minimal eye contact within days of being born (Farroni, Csibra, Simion and Johnson,

2002). They progress steadily in this behavior such that by the time they are three months old, they exhibit the ability to recognize and differentiate among face with varying expressions. They are able to meaningfully respond to smiles and frowns as well as facial expression indicating sadness, happiness, anger, surprise and so on, though with marked level of imperfection (Halberstadt Parker and Castro, 2013). Shortly after this, toddlers are (according to Farroni, Csibra, Simion and Johnson, 2002) able to shift their spatial attention in the direction of the gaze shift of anyone whose face they are observing. This tendency (joint attention) is another crucial one which begins to develop and systematically manifest even while the instinctive crying and cooing behavior are in full swing. It is often referred to as joint attention, a feature which manifests incrementally throughout the first year of life.

Joint attention is indicative of the development of cooperative communication between the child and care givers, demonstrating the fact that the child is able to take cues from caregivers towards ascertaining objects or persons of interest in a communicative context. This apparently is a critical scaffold which children employ in the subsequent construction of the more complex and more expressive linguistic communication.

Further insights provided by Halberstadt, Parker and Castro (2013) indicate that by the time toddlers are nine months old, the capacity to decipher deeper meaning from faces manifest in the tendency to stare longer at persons whose facial expressions are ambiguous, apparently with the intention of studying such faces more intently so as to extract meaning from them. By the time toddlers are between twelve and fourteen months old, they tend to engage in what is often called social referencing which involve staring at caregivers faces in uncertain social context with the clear intention of deciphering the faces for information that would help them understand the situation.

Another important nonverbal feature which must be integrated into description of language development processes is engagement in pointing. This is a feature that becomes prominent from eleven months onwards. Cochet and Vauclair (2010) highlight the importance of this by explaining that hand pointing in toddlers is a gestural communication relating to object identification which “provides a foundation for verbal communication, both predicting and facilitating the acquisition of language” (P. 137). The scholars further espouse the function of hand pointing in toddlers, explaining that hand pointing develops and becomes so systematic that toddlers are known to use it for two main functions: imperative and declarative functions). Children use imperative pointing to obtain something from the adult, especially an object they desire, and use declarative pointing gestures direct the adult’s attention to an object in order to indicate its existence and demonstrate shared or joint interest in that object. Declarative pointing often involves declarative expressive pointing with which children draw caregivers’ attention to objects, locations or events to they consider interesting and worthwhile. They also engage in declarative informative pointing, they seek to provide the caregivers with information the toddler considers important. As toddlers begin to point at objects of interest, they gradually learn the words associated with them.

One can argue therefore that it is clearly not coincidental that roughly three months after the onset of these tendencies, toddlers begin to utter their first words which typically consist of words that refer to parents (such as Papa and Mama) as

well as objects in the immediate environment which the toddlers have consistently pointed at. Clearly the pointing gesture is both a precursor and a corollary of the acquisition of words. Cochet and Vauclair (2010) further explain that as toddlers eventually begin to combine pointing gestures with words, they quickly gravitate toward the stage of engaging two word combinations in their utterances. This is further proof of the centrality of pointing in language acquisition among normal children. One must reiterate that these elements espoused above are merely examples of how nonverbal elements are essential and critical precursors and corollaries of language development. Therefore, any discussion or description of the language development process would not be complete without their inclusion.

Concluding Remarks

In conclusion, nonverbal communication plays a vital role in language development in toddlers, and its impact becomes particularly evident when studying children with autism. Deficits of nonverbal communicative behavior in autistic children in the critical missing link which predisposes them to language use challenges. Indeed, therapists often strive to teach them to engage in eye contact in order to build proper communication behavior and ultimately language use. It is therefore important that descriptions of the language development process must factor in and integrate nonverbal communication as it manifests and influences different language acquisition stages. This would offer a more composite and complete perspective on how children learn to use language. An understanding of the critical role of nonverbal communication in language development will also help caregivers to look out very early, for language development red flags which the absence of some of the elements involved often constitute.

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