**Final Research Paper**

# ASD: Language Acquisition, Monolingual vs Bilingual

Kinsey L. Merta

The University of Tampa

AWR201-42

Dr. A.M. Sterzik

December 10, 2023

## Introduction

The number of Autism Spectrum diagnoses are increasing around the world (Fahim & Nedwick, 2014; Lund, et al., 2016). As the number of children born into multilingual environments increases as well, there is growing concern about bilingualism's impact on language development in children with Autism Spectrum Disorder (ASD) (Lund, et al., 2016). Before examining the effects of secondary language acquisition for children with ASD, it is important to understand how their language acquisition processes initially differ from Typically Developing (TD) children (Parisse, 1999; Swensen, et al., 2007; Talbott, et al., 2020). All children typically begin linguistic development through gesture-based, or non-spoken communication processes before progressing to the stage of spoken language (Talbott, et al., 2020). It is deviation from these normal gestures, such as lack of observable language progression, that leads to early diagnoses of ASD (Talbott, et al., 2020). Although social and communicative deficits are primary characteristics of ASD, research has revealed that despite the advice commonly given by professionals to restrict ASD children to monolingual development, bilingual acquisition does not further hinder their overall linguistic development (Fahim & Nedwick, 2014; Kay-Raining Bird, et al., 2012: Lund, et al., 2017). As ASD and bilingualism become more common, it is likely that medical professionals and educators will encounter a dual-lingual ASD child that requires a more unique set of needs be met. Therefore, it is important to not only understand the differences in language acquisition for ASD children compared to TD children, but also the different linguistic abilities of bilingual children on the spectrum (Fahim & Nedwick, 2014; Kay-Raining Bird, et al., 2012; Lund, et al., 2017).

My research questions for the following paper focus on the process of language acquisition for children diagnosed with Autism Spectrum Disorder (ASD), and how this further affects language development for Monolingual vs Bilingual/Multilingual ASD children.

1. How does language acquisition differ for children diagnosed with Autism Spectrum Disorder (ASD) and Typically Developing (TD) children?
2. How does ASD affect bilingual language acquisition and learning for diagnosed children?

## Linguistic Development of ASD Children

Autism Spectrum Disorder (ASD) is defined as, "a developmental disorder that occurs with varying degrees of severity but is universally characterized by deficits or impairments of social and communicative ability" (Lund, et al., 2017, p. 106). Since the biological cause of Autism is still unknown, diagnosing ASD primarily relies on the observation of characteristics and behaviors that deviate from typically developing (TD) children (See Appendix A) which include ASD children demonstrating difficulty with social interactions, restrictive or repetitive movements, and abnormal responses to sensory stimuli (Fahim & Nedwick, 2014; Parisse, 1999). The most prominent cognitive deficit associated with ASD is a developmental delay in language acquisition, and observation of delayed speech is usually the biggest indicator leading to the diagnosis of autism in children (Fahim & Nedwick, 2014; Lund, et al. 2017; Parisse, 1999; Swensen, et al., 2007; Talbott, et al., 2020). Linguistic and cognitive performances of TD and ASD children will remain close in comparison as infants but will differentiate as they continue to develop (Parisse, 1999; Swensen, et al., 2007, Talbott, et al., 2020). ASD children learn to compensate communicative impairments, such as the ones listed in Appendix A, by using processes deviant of TD children, making it more difficult to determine what specific

developmental deficits of ASD language acquisition are, because autistic children will present deviant behaviors as their 'norm' (Parisse, 1999). This also means that diagnosing ASD is delayed until after children reach the stage of spoken language development, when a lack of normal progression in word utterances and vocabulary becomes more noticeable to caregivers (Parisse, 1999, Talbott et al., 2020). Normal language acquisition is accompanied by a desire to communicate intentionally, but in autistic children this desire is weaker, which is a possible explanation as to why some children with ASD remain non-verbal and do not develop spoken language (Parisse, 1999), as it is estimated that "Only half of all autistic children become able to use language at all." (Parisse, 1999, p. 254). Of the half that can use spoken language, 25%-30% will not develop the ability to produce complex speech (Talbott, et al., 2020). Thus, "knowledge of normal [language] mechanisms [is] necessary to understand autism" (Parisse, 1999, p. 248). It is necessary to identify the normal processes of language acquisition and compare them to the available data on ASD language acquisition to see their effects.

In one study, the presence of gestures preceding production was tested to see if it is as important of a communication and language development strategy in ASD children as it is in TD children (Talbott, et al., 2020). "It is not known whether toddlers with ASD acquire gestures in the same order relative to other communication milestones…as has been documented in typical development" (Talbott, et al., 2020, p. 743). In TD children, gestures are used to predict language development and the first onset of words (Talbott, et al., 2020). For example, a child learns how to point at milk before they can verbally ask for milk. This shows that children develop an understanding of language and vocabulary cognitively before they can express so linguistically. Gesture usage helps to improve a child's conceptual, communicative, and attentional levels (Talbott, et al., 2020), which prepares them for the development of more

complex speech (Swensen et al., 2007). Since ASD children have difficulty with social communication and joint attention (Fahim & Nedwick, 2014; Parisse, 1999), the development of gestures is often delayed in ASD children and used with less frequency and complexity than in TD children (Talbott, et al., 2020). This means that a lack of gesture use is another deviant behavior that can help lead to ASD diagnosis (Parisse, 1999; Talbott, et al., 2020). Results of the study conducted by Talbott, et al. (2020) found that although ASD children have difficulty with gesture production, it is still an important tool for their linguistic development. TD children use gestures such as distal pointing to communicate before they can use verbal language (Talbott, et al., 2020), as demonstrated by the 'milk' example. The developmental sequence of ASD children mostly follows this typical development, however the study found that some ASD children began using distal pointing after learning to speak verbally rather than before (Talbott, et al., 2020). This is the result of the behavioral process of language mimicry being used more frequently by ASD children (Fahim & Nedwick, 2014; Parisse, 1999; Talbott, et al., 2020). The results of this study also found that both ASD and TD children tend to combine gestures and words before developing more complex two-word speech (Talbott, et al., 2020). "While gestures are not a required prerequisite to first words, they are closely tied to the onset of more complex speech, both preceding and predicting the temporal onset of two-word speech" (Talbott, et al., 2020, p. 750). This means that gestures can be used as a process for developing intentional communication in ASD children prior to both single and complex language and deliberate use of gestures may be a helpful tool for advancing the communication processes of non-verbal ASD children. Acquisition of productive complex speech in early stages of language development is a good predictor of long-term linguistic abilities for young children with ASD, and understanding the role gesture plays in language acquisition is beneficial to language therapy for ASD children

(Talbott, et al., 2020). “Implementing intervention practices to increase gesture use may increase the rate of early language development and the number of young children with ASD who acquire multiword speech” (Talbott, et al., 2020, p. 745).

Another study was conducted to test if two specific typical lexical and grammatical language processes, *comprehension preceding production* and *noun bias,* were also used by children diagnosed with ASD in linguistic development (Swensen, et al., 2007). Comprehension preceding production and noun bias were chosen because they are well researched and heavily supported TD language processes (Swensen, et al., 2007). Comprehension preceding production attests that many children understand aspects of language and specific words before they can produce them, meaning they analyze language at more advanced levels than the level of language they use (Swensen, et al., 2007). For example, a child understands what ‘milk’ is and when they want it before they can say “I want milk”. Noun bias, a process helpful to early vocabulary acquisition for children, explains how a child analyzes new scenarios by identifying the noun before deducting what verb or action goes with it (Swensen, et al., 2007). For example, when a child hears, “The boy pushed the girl”, they will correctly identify the boy and the girl before deducting what the verb “push” means in the context of the situation. Prior to this test, it was believed that ASD children did not demonstrate comprehension of language before production (Swensen, et al., 2007), because of cognitive deficits that delayed the onset of speech (Fahim & Nedwick, 2014; Lund, et al. 2017; Parisse, 1999; Swensen, et al., 2007; Talbott, et al., 2020). It was also believed that the presence of noun bias was the result of the label-oriented language therapy given to ASD children, and therefore could not be considered a natural linguistic process for them (Swensen, et al., 2007). The results of this study found that, “…both ASD… and typical…children comprehended SVO word order before they provided evidence of

production" (Swensen, et al., 2007, p. 552). This reveals that despite cognitive deficits, ASD children understand more advanced aspects of language such as grammar and syntax before they produce them (Fahim & Nedwick, 2014; Swensen, et al., 2007). This finding further supports the theory that gesture preceding production is a linguistic tool used by both TD and ASD children (Talbott et al., 2020), because it attests that ASD children can understand word meanings and demonstrate so through gestures such as pointing before they are able speak. In addition, results found that both TD and ASD children use noun-bias when first encountering unfamiliar sentence structures to determine their correct context (Swensen, et al., 2007). This reveals that noun bias is an important process that helps children with ASD "enable correct mappings between words and the world" (Swensen, et al., 2007, p. 553), just as it is for TD children. These findings demonstrate that ASD and TD children acquire language similarly in the context of comprehension preceding production and noun bias, countering original scientific belief that cognitive language deficiencies prevented ASD children from using these processes.

Criteria that must be met to consider a language "successfully acquired" in all children includes a "master[ing of] the sound system (phonology), the vocabulary (lexicon), word formation (morphology), sentence formation (syntax), phrasal- and sentence-level meaning (semantics), and appropriate usage (pragmatics)" (Fahim & Nedwick, 2014, p. 5). The objective of the study conducted by Parisse (1999) focused on the lexical (vocabulary) and syntactic (sentence formation) development of autistic children compared to normal children. The study group consisted of diagnosed ASD, Down-syndrome, and TD children (Parisse,1999), but focused on the results that compared ASD and TD children. The results revealed that autistic children produce higher quality imitations and more repetitions of the speech they were exposed to (Parisse, 1999), reaffirming the repetitive behavioral patterns common with ASD diagnoses as

mentioned earlier. In lexical analysis, “All groups of children produce[d] more nouns, fewer verbs, fewer pronouns, and more interjections than their parents” (Parisse, 1999, p. 260). This means that in respect to lexical processes, Parisse (1999) found ASD and TD children developed the same. However, autistic children displayed a slight deficit in semantics with a lack in use of ‘pointer words’ such as there, that, oh, ah, and uh (Parisse, 1999). This was likely the result of how ASD children naturally interact with the world differently than TD children. They used the pointer words more spontaneously, unlike TD children who use them deliberately to address surrounding objects (Parisse, 1999). This shows that there are semantic differences between ASD and TD children, but that both groups tend to acquire language similarly in grammatical and lexical contexts (Parisse, 1999; Swensen, et al., 2007). This further suggests that the lexical and grammatical aspects of ASD language acquisition are not impaired, although semantic aspects were found to be challenging. “[This] difference in high-level processes does not prove that all the underlying brain mechanisms are different [for ASD children]” (Parisse, 1999, p. 266). It is evident by this study that for both ASD and TD children, linguistic and cognitive knowledge develop mutually, and that a deviation in typical language processes does not serve as proof of entirely different brain mechanisms being present in ASD children.

So, “Do children with [ASD] and typical children acquire language in the same way?” (Swensen, et al., 2007, p. 542). The evidence presented thus far suggests that they do. Although children with ASD may face additional language challenges and delays because of their deviant social behaviors, ASD children, like TD children, implore gesture usage to develop communication before complex speech (Talbott, et al., 2020), acquire language similarly in grammatical and lexical contexts (Parisse, 1999), show signs of understanding language before

proper production, and use noun bias as a tool for developing more complex vocabulary (Swensen, et al., 2007).

## Bilingual ASD Language Acquisition

There has been an increase in the number of ASD diagnoses around the world, with a larger number of ASD children being boring into multilingual environments as well (Fahim & Nedwick, 2014; Lund et al., 2017). This has caused a growing concern about the impact of bilingual acquisition on overall language development in children with ASD (Lund, et al. 2017). The common misconception is that since most children with ASD struggle with initial language development, introducing an additional language with a different set of rules will further hinder an ASD child's language abilities (Fahim & Nedwick, 2014; Lund, et al., 2017, Kay-Raining Bird, et al., 2012). Although this misconception might seem insignificant, it is misinforming medical professionals to advise families that their ASD children must be brought up strictly in monolingual environments, and this can be detrimental to the child's ability to socialize with their language-diverse families and communities (Fahim & Nedwick, 2014; Kay-Raining Bird, et al., 2012; Lund, et al., 2017,).

Bilingualism is the ability to understand or speak two languages proficiently (Lund, et al., 2017). Simultaneous bilingualism is when a child acquires two or more languages from birth or the beginning of their linguistic development (Lund, et al., 2017). Sequential bilingualism occurs when the learner is exposed to another language after already being proficient in a first language (Lund, et al., 2017). A dual language learner (DLL) is "a young child who is exposed to and is acquiring two or more languages" (Fahim & Nedwick, 2014, p. 4). Because of the increase of ASD children being born into multilingual environments, many children with ASD are also DLL's (Fahim & Nedwick, 2014). "Little research is currently available to guide parents or

professionals when making decisions about bilingualism for children with autism" (Kay-Raining Bird, et al., 2012). As a result, most parents are counseled away from raising a child with autism to be bilingual because of fears that it will create additional language difficulties for them (Fahim & Nedwick, 2014; Kay-Raining Bird, et al., 2012, Lund, et al., 2017). It is estimated that about 12%-14% of English language learners require special education services, and most special educators are monolingual English speakers (Lund, et al., 2017). This affects the quality of language services available to young learners with ASD, especially those that are bilingual, and is a potential cause for demographic delays in treating autism (Lund, et al., 2017). For example, ASD children who spoke a non-English language at home tend to enter special education at a later age than children who had English as a primary language (Lund, et al., 2017). Lack of quality multilingual resources for bilingual ASD learners is a reason why some families decide to raise their child with ASD in a monolingual environment (Lund, et al., 2017), but a more prominent reason for monolingual upbringings is that medical professionals tend to advise families with an ASD child against multilingual acquisition (Kay-Raining Bird, et al., 2012). A survey found that almost half of the families that participated had been consistently discouraged against raising their child bilingually (Kay-Raining Bird, et al., 2012). According to the same survey, 43% of families decided to expose their ASD children to multiple languages despite overwhelmingly negative professional advice (Kay-Raining Bird, et al., 2012). The primary reasons why parents decided to raise their ASD child bilingually were to improve the child's overall communication abilities, by necessity based on living in bilingual environments, and the potential opportunities their bilingual child could have later in life (Kay-Raining Bird, et al., 2012). Researchers suggest that bilingual acquisition is more beneficial to ASD children living in multilingual environments because it allows them to connect more fully to their culture and have

higher-quality interactions within their communities (Kay-Raining Bird, et al. 2012; Lund, et al., 2017). Being raised monolingually would entirely disconnect ASD children from their multilingual environment, which could further impair their linguistic abilities by preventing them from being able to fully participate in social interactions. The results of the survey also determined that most ASD children being raised in a bilingual environment were successful in acquiring multiple languages despite their perceived cognitive disadvantage (Fahim & Nedwick, 2014; Kay-Raining Bird, et al., 2012). One participant revealed that, "it is quite possible [her] daughter would have been much less high [functioning]…had she not been exposed to two languages…[and that] by forcing her brain to deal with two languages, [they] actually helped her cope with change" (Kay-Raining Bird, et al., 2012, p. 59). A professional proposed that this is because a child with ASD would have difficulties with language acquisition regardless of whether they were exposed to only one or multiple languages (Kay-Raining Bird, et al., 2012).

Despite confidence in their decision to raise their ASD child bilingually, many parents expressed concern that there would be a lack of access to professional help and services regarding their bilingual child's needs, especially within the school system (Kay-Raining Bird, et al., 2012). As the rate of bilingual children with ASD increases, it becomes more likely that educators, therapists, and other professionals will encounter bilingual ASD children (Fahim & Nedwick, 2014; Kay-Raining Bird, et al., 2012; Lund, et al., 2017). Thus, it is necessary that ASD caregivers understand the role of cultures and languages surrounding a DLL before intervention protocols can be introduced (Fahim & Nedwick, 2014). Fahim and Nedwick (2014) analyzed the specific situations of several ASD DLL's, in both verbal and non-verbal contexts, and used their findings to suggest intervention methods for improving multilingual understanding and application in ASD children. Firstly, "providers [should] work closely with

parents to assess which languages they use at home and across environments, when they use them, who uses them, [and] what their expectations are for their child" (Fahim & Nedwick, 2014, p. 8). Support of multilingual ASD language learners and their families will be most beneficial when the developmental strategies recommended are catered to their child's and family's specific needs (Fahim & Nedwick, 2014, Kay-Raining Bird, et al., 2012). The family's daily routine is part of the child's natural environment and provides optimal learning opportunities for them (Fahim & Nedwick, 2014). Introducing aid to children by integrating it into their normal lifestyle will ensure that the child is comfortable and not overstimulated so that they can be receptive of the information being presented (Fahim & Nedwick, 2013). "It is important to maximize the multiple language learning opportunities in the home that may not be available to them in other settings" (Fahim & Nedwick, 2014, p. 13). For example, a child's bath time is a learning opportunity to introduce language and social skills in both languages the child is trying to acquire, but most probably carry out this activity with minimal commentary since it is routine (Fahim & Nedwick, 2014). Next, providers should note all words, both proper and slang, used commonly throughout the child's daily activities and ensure that the child's caregivers use the correct and appropriate words with both languages (Fahim & Nedwick, 2014). This helps to ensure that there is linguistic consistency for the child so that the child can make connections and develop generalization skills in both languages (Fahim & Nedwick, 2014). It is also important for providers to help find appropriate alternative communication methods, such as sign language or speech-generating devices, as another method of expressing linguistic inputs to ASD children so that they can better understand what is being communicated to them (Fahim & Nedwick, 2014). "Efforts should be made to support the development and competence in the two languages of DLL with ASD, as this may prove to be more rewarding in terms of the child's long-term

wellbeing, mental health, access to community, and educational benefits" (Fahim & Nedwick, 2014, p. 17). More research on ASD and bilingualism is necessary to help guide professionals and support families with multilingual ASD children (Fahim & Nedwick, 2014; Kay-Raining Bird, et al., 2012; Lund, et al., 2017). The results of my research reaffirm that the recommendation to restrict ASD children to a single language input are based off of an incorrect misconception because scientific results reveal multilingualism will not further hinder the cognitive deficiencies of ASD language acquisition, but that multilingual acquisition can be more beneficial to connecting ASD children to their communities socially and can provide them with higher-quality linguistic input.

## Conclusion

This paper compares language acquisition for children diagnosed with ASD to TD children by discussing specific developmental language processes such as gesture preceding production, lexical and syntactic development, as well as comprehension preceding production and noun bias. The results from each study revealed that ASD and TD children acquired languages similarly when using those processes. This paper then connected first language development processes of children with ASD, to the development of multilingual acquisition in children with ASD. The results revealed that although it is assumed children with ASD should be restricted to monolingual development, they have no cognitive disadvantage and can acquire multiple languages, which is more beneficial to the overall wellbeing of ASD children in multilingual communities. Finally, this paper suggests and analyzes different methods that could be used to support multilingual development for children with ASD so that both professionals and families can better meet their child's special needs.

## References

Fahim, & Nedwick, K. (2014). Around the World: Supporting Young Children With ASD Who Are Dual Language Learners. *Young Exceptional Children, 17(2), 3-20*. https://doi.org/10.1177/1096250613477870

Kay-Raining Bird, Lamond, E., & Holden, J. (2012). Survey of bilingualism in autism spectrum disorders. *International Journal of Language & Communication Disorders, 47(1), 52–64.* https://doi.org/10.1111/j.1460-6984.2011.00071.x

Lund, Kohlmeier, T. L., & Durán, L. K. (2017). Comparative Language Development in Bilingual and Monolingual Children With Autism Spectrum Disorder: A Systematic Review. *Journal of Early Intervention, 39(2), 106–124.*https://doi.org/10.1177/1053815117690871

Parisse. (1999). Cognition and language acquisition in normal and autistic children. *Journal of Neurolinguistics, 12(3), 247–269*. https://doi.org/10.1016/S0911-6044(99)00017-2

Swensen, Kelley, E., Fein, D., & Naigles, L. R. (2007). Processes of Language Acquisition in Children With Autism: Evidence from Preferential Looking. *Child Development, 78(2), 542–557*. https://doi.org/10.1111/j.1467-8624.2007.01022.x

Talbott, Young, G. S., Munson, J., Estes, A., Vismara, L. A., & Rogers, S. J. (2020). The Developmental Sequence and Relations Between Gesture and Spoken Language in Toddlers With Autism Spectrum Disorder. *Child Development, 91(3), 743–753*. https://doi.org/10.1111/cdev.13203

# Appendix A

## Behavioral Characteristics Associated with ASD

Table 1
Behavioral characteristics associated with autism

| Behavioral characteristics | Examples of behavior |
|---|---|
| Significant difficulties with social behavior | Children do not pay attention to people, they do not play with others, and/or they do not reciprocate. They present anomalies in eye contact. |
| Significant difficulties in verbal and communicative behavior | Children grab what they want, they copy or parrot words (echolalia) and when they speak, they do not converse; they do not initiate communication and present attention deficits. |
| Significant difficulties in the development of play. | Children use only parts of toys, they line up and stack objects and do not display imaginative play. |
| Highly restricted repetitive patterns of behavior | Children may talk continuously about the same thing or repeat the same questions, they may stare at objects, flap their fingers or hit themselves. |
| High resistance to even slight changes in routines | |

(Parisse 1999, p. 249)