

The Environmental Factors and Spoken English in Children with Autism: A Literature Review

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Abstract

Autism Spectrum Disorder (ASD) impacts a person's communication and social interaction skills. For individuals with autism, achieving native-like spoken English language proficiency can be a complex and formidable undertaking. The environment plays a critical role in shaping the acquisition of language, and this applies specifically to children with autism. This literature review aimed to investigate the influence of environmental factors on the improvement of native-like spoken English skills in children with autism. Past studies indicated that early diagnosis of autism followed by intensive therapy and participation in preschool programming can increase the total amount of spoken English exposure for children with autism. Bilingual language exposure by parents does not cause language or speech delays in autistic children, and in fact, bilingualism can offer numerous advantages for individuals with autism, including social development, cultural connections, and overall well-being. However, there is still a lack of conclusive evidence to support the recommendation that parents use English exclusively with their autistic children. Further research is necessary to fully understand the complex relationship between environmental factors and the development of spoken English abilities in children with autism.

Keywords: Children with Autism, Environmental factors, Native-like Spoken English, Bilingual, English Language Acquisition

Introduction

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder that affects a person's communication and social interaction skills (APA, 2000). The severity of communication difficulties varies across the spectrum, with some individuals having little or no language skills, while others may have advanced language skills but struggle with social communication. The estimated count of children impacted by autism in Malaysia stands at around 47,000 (Bakar, 2019). According to Fernandes et al., (2011), there is a strong relationship between language development and both linguistic and environmental contexts. Language acquisition is not solely dependent on innate abilities or individual factors, but is significantly impacted by the environment and social interactions. Additionally, research by Waizbard-Bartov et al., (2023) suggests that the extent of disability can be influenced by various environmental factors, including the amount and effectiveness of intervention, socioeconomic status, and the

availability of quality support services.

Children with autism often have difficulty with verbal and nonverbal communication, making it difficult for them to express themselves and understand others. Communication challenges can impact many areas of life for children with autism, including their ability to form relationships, engage in social interactions and navigate the demands of school (McCary et al., 2012). In this context, understanding the communication and language skills of children with autism is crucial to support their development and improve their quality of life. Towards the end of their first year, infants commonly display various communicative behaviors that are typically absent in children with autism, as recognized by an informed observer (Tager-Flusberg et al., 2005). Due to their lower interest in others during the first year of life, children with autism may experience challenges in acquiring language skills. They often concentrate more on their surroundings, which may limit their opportunities for social interaction and language development compared to typically developing children, who are more inclined to communicate with others. However, due to the wide-ranging diagnostic criteria associated with ASD, distinct traits are evident among individuals with this condition. Particularly among children with autism, there exists a wide spectrum of developmental backgrounds, leading to significant variations in their mastery, vocalization, and expression of language encompassing grammar and vocabulary (Weismer, 2014). While challenges in functional language serve as crucial early indicators of ASD, the speech and communication difficulties are not consistent across individuals (Romeo et al., 2022). Despite these variations, ASD is linked to a diverse spectrum of language abilities, including the capacity to learn and attain fluency in multiple languages (Hampton et al., 2017).

The diverse language abilities associated with ASD, including the capability to attain fluency in multiple languages (Hampton et al., 2017), align with the concept of native-like spoken English, defined as proficiency similar to that of a native English speaker in terms of pronunciation, intonation, rhythm, and idiomatic expressions (Yager, 1992). This means that a non-native speaker of English can speak English fluently and with a high degree of accuracy, to the point that they are often perceived as a native speaker. Additionally, Yager (1992) uses the term "native" to refer to a person's first language or languages, which are acquired before puberty, while different degrees of "native-like" are used to describe second language (L2) speech acquired after puberty. In the context of this study, the categorization of "native-like spoken English" is based on grammatical proficiency rather than accent or pronunciation in conversations. Yager (1992) added, linguistically speaking, no dialect is considered superior to another. Therefore, it would be unjust to compare the pronunciation of someone who has an accent influenced by Latin American dialect to that of a Castilian accent. Similarly, autistic individuals may have a range of communication abilities, and it is not appropriate to assume that all children with autism have the same level of proficiency in spoken English or any other language. Thus, this research endeavors to examine the influence of environmental factors on the acquisition of native-like spoken English skills in children with autism, highlighting the critical need to understand and support the varied linguistic capacities within this specific group, ultimately fostering improved communication outcomes.

Literature Review

Autism and Multilingual

Upon a child's initial diagnosis with autism, a significant concern for both parents and professionals is how the child will develop language. Language input and output become crucial to the child's interactions with family, education, and treatment. Deciding which language practices to utilise with children with autism becomes a particular challenge if the parents' native language does not match the dominant language used in schools and clinical services. This is because the exposure of children with autism to multiple languages has raised concerns among both parents and service providers regarding the potential adverse effects on their linguistic and communication skills (Gilhuber et al., 2023). Parents have stated that they feel less comfortable when communicating in a language that isn't their native one (Hampton et al., 2017). This discomfort might affect both the amount of language exposure their children receive and the quality of their interactions (Hudry et al., 2017). In fact, parents of multilingual children with autism have stated that therapists frequently endorse communicating with their child using only one language, which makes it even more difficult to determine which language should be used for daily communication (Fernandez et al., 2012; Kremer-Sadlik, 2005).

Parents have expressed worries regarding how exposure to multiple languages might affect the language abilities and communication skills of children with autism (Gilhuber et al., 2023). Some parents may prefer to use their native language, or a language normally spoken in their residence, while others may opt to use a language that is more widely used in the ASD community or in clinical settings. The preference of parents was for their children with autism to receive education in the native language of their family. This choice stemmed from the belief that the child's integration and active participation within their household or community relied on their ability to comprehend and speak their native language (Guler et al., 2018). The choice of language(s) may depend on various influences, such as the family's social background, the availability of resources and support, and the child's language abilities and preferences. Understanding the implications of language choices for parent-child interactions, language acquisition, and social communication is critical to providing appropriate support and interventions for families with children on the autism spectrum.

Parents of autistic children, who favor speaking English, articulate the challenges they encounter when encouraged by therapists to make English their primary language despite their proficiency in their native languages. This recommendation stems from English being the dominant language in the country where they reside, creating difficulties for these parents in adapting their daily communication to suit this advice (Yu, 2018; Yu & Hsia, 2019). For instance, certain words or expressions may have different meanings or connotations in different cultures, leading to confusion or misunderstanding. In a study by Cheatham et al., (2007), they looked at Mei Mei, a young Chinese child with special needs. Mei Mei could only speak Chinese at age five. When she moved to the United States, she learned and used only English, becoming very good at it. But this made it hard for her to talk with her mother, who did not know much English. Mei Mei had to explain things in simple English to her mom, causing some difficulties. Now, Mei Mei finds it tough to understand her parents when they speak Chinese and prefers to talk in English because it's easier for her. This study shows how language choice can affect communication for people with special needs and their families. It reminds us to understand and be aware of the challenges caused by different languages.

English Language Acquisition

Studies have found that some individuals with ASD may even exhibit better proficiency in English than in their native language. Þráinsson (2012) stated that the Diagnostic and Counseling Centre of the Icelandic State has documented cases of children with autism in Iceland who are five years of age or older and have experienced delayed development in their first language, resulting in poor proficiency in Icelandic. However, some of these children with autism have displayed an unexpected level of fluency in English, and in certain instances, their English fluency has surpassed their Icelandic fluency.

Further, Þráinsson (2012) observed that no common factor has been identified to account for this unusual pattern of development. The reasons for this preference for English over native language in individuals with ASD are not entirely clear. Kremer-Sadlik (2005) and Matti (2022) suggested that the structure of English may be easier for individuals with ASD to comprehend. Overall, the preference for English over native language in individuals with ASD highlights the importance of considering their unique communication and language needs when designing language intervention programs. It also suggests that English language instruction may be a valuable tool for promoting communication and social skills in individuals with ASD. In the realm of English language acquisition for autistic children, environmental factors encompass a broad spectrum of influences that significantly impact their linguistic development. Beyond inherent cognitive variances, these factors encompass a broad spectrum of influences, including but not limited to social dynamics, educational settings, and familial support structures. Social interactions, both within structured learning environments and everyday interactions, play a fundamental role in language acquisition. Moreover, the adaptability of educational approaches, tailored to individual needs and incorporating diverse modalities, significantly shapes language development. Family involvement, access to resources, and the broader societal understanding and support for neurodiversity also factor into this milieu, illustrating the multifaceted interplay of environmental elements in the English language acquisition journey of autistic children. Understanding and addressing these factors holistically is crucial for facilitating effective language learning in this diverse population.

Environmental Factors

The significance of environmental factors in the language development of children with autism has been a focal point in various studies. Bishop and Norbury (2002) highlighted the direct influence of factors like parental input, language exposure, and social interaction opportunities on language skills. Their findings revealed that greater exposure to enriched and interactive language environments resulted in more pronounced language improvements in these children. Building on this understanding, this paper delves into a review of literature specifically examining the impact of environmental factors on the acquisition of native-like spoken English skills in children with autism.

Parental Characteristics

Language development is a crucial aspect of a child's overall growth, and its early onset is dependent on various factors, including genetic, environmental, and social factors. For children with autism, language development can be a challenging and complex process due to their communication impairments. Studies have shown that parental characteristics (Grandgeorge et al., 2009), such as language exposure (Kremer-Sadlik, 2005; Paradis et al.,

2018), communication style, and responsiveness (Edmund et al., 2019), play a vital role in the language development of children with autism. Therefore, it is essential to understand how these parental characteristics influence the language development of children with autism to provide effective interventions and support for their communication needs.

The current study aimed to investigate the impact of parental education level on the language development of children with autism. Previous research suggests that children raised by highly educated parents tend to have faster language development compared to those raised by parents with lower educational attainment (Grandgeorge et al., 2009). One reason for this correlation is that highly educated parents tend to use the universal language which is English as their medium of communication. They use more complex language and engage in more conversation with their children, which provides children with more opportunities to learn language and develop their vocabulary. Highly educated parents may also be more knowledgeable about child development, including language development, and may be more likely to engage in activities that promote language development, such as reading to their children or engaging in educational activities.

In the case of children with autism, the impact of parents' language exposure is particularly significant. Baron-Cohen and Staunton's (1994) study found that the accent of autistic children closely resembled that of their mothers, indicating that they were less affected by peer influence. Multiple studies have identified distinct groups of parental language exposure for children with autism. Some parents choose to expose their children with autism equally to both English and their native language for daily communication, while others may predominantly use English despite having another native language. Conversely, some parents believe that the sole use of their mother tongue is the most effective way to communicate with their autistic children. According to Srikar et al., (2022), parents play an important role in deciding the language environment for their children. Parents of children with autism have expressed greater concerns when their child is part of a bilingual or multilingual family, given that the language growth of autistic children differs from that of neurotypical children. They believe that exposing children with autism to two languages, their native language and English, could cause confusion and further delay their language development. Paradis et al., (2018) found that by the time children with autism reached elementary school, they were exposed to twice as much English as typically developing (TD) children. Additionally, the study revealed that children with autism heard and spoke more English than their typically developed peers at home.

However, Howard et al., (2021) conducted a study where parents of multilingual children with autism reported that their children demonstrated communicative benefits from bilingualism. Specifically, the children with autism displayed proficiency in selecting the appropriate language to use (native or English) when communicating with others. Interestingly, the children with autism demonstrated the ability to code-switch and code-mix between their first language and English, despite having greater proficiency in the latter. In the same study, a parent noted that the added difficulty of switching between languages could potentially encourage her son to stay mentally engaged and avoid distractions. Code switching and code mixing are widespread linguistic phenomena that occur when two or more languages are used in a single clause or utterance, and they are recognized as signs of bilingual competence. Mabule (2015) notes that code switching is a multifaceted process that can involve different levels of switching or mixing depending on one's proficiency in the languages used. Specialists

in code switching consider it a functional practice and a sign of competence in bilingualism, which can refer to both the ability to speak two or more languages fluently and the ability to understand them fully, even if one is not able to speak them fluently. Even when autistic children have native-level proficiency in spoken English as their second language (L2), they can still code-switch and code-mix, despite not necessarily having full grammar knowledge of their native language. This ability to switch between languages enables them to convey a message and facilitate mutual understanding in conversations with both multilingual and monolingual individuals.

Therapist's Suggestions

Autistic children who have native-like spoken English abilities may still experience challenges with social communication and interactions due to their diagnosis. Most parents indicated that therapists generally discouraged creating a bilingual environment. As such, therapists may suggest using English as a medium of conversation with these children in specific ways to support their communication development. Srikar et al., (2022) analysed their interview data and found that parents frequently receive professional suggestions to implement a monolingual method. The study found that families commonly opt for the non-native language, which serves as the method of instruction at school or intervention, instead of their native language. In a similar vein, Kremek-Sadlik (2005) reported that when parents who spoke a language other than English had a child diagnosed with autism, therapists recommended that they use only English when speaking to their child, notwithstanding their own English ability. The parents comprehended that this was to guarantee their child's consistent exposure to the same language both at home and in the outside world. From these cases, it can be deduced that the therapists aimed to "simplify" the linguistic input for the child to facilitate their language learning and usage. Limited studies on the difficulty of learning English grammar compared to one's native language prevent this review from offering conclusive evidence to support the claim that learning English grammar or the language itself is simpler than learning the grammar of one's native language. The recommendation by therapists for parents to communicate with their autistic children solely in English lacks strong and sufficient research support. Gilhuber et al., (2021) arrived at the conclusion that there is no indication that exposure to numerous languages poorly affects the language and communication abilities of children with autism. Multilingual children with autism typically experience comparable autism-related communication challenges to their monolingual peers.

Despite being able to communicate in English proficiently, similar to native speakers, children with autism encounter obstacles and struggles when it comes to acquiring the language's grammar due to their neurological impairments. The language development of an autistic child is impeded by inadequate social interaction, leading to difficulties in social interpretation due to their decreased social skills stemming from neurological differences. This has varying impacts on critical language domains such as grammar, pragmatic functions, and discourse, as noted by Hashim et al., (2022). The proficiency level in English among some family members was not on par with their proficiency in their native language, resulting in communication misunderstandings whenever other family members who are not proficient in the second language (English) are involved.

The Prevalence of English as the Primary Language

In recent times, English has gained increasing preference as the language for proper education and employment, becoming a crucial aspect of the country's linguistic repertoire (Srikar et al., 2022). Meanwhile, English is considered a second language in Malaysia, implying that Malaysians should possess the ability to employ and converse using English (Adan & Hashim, 2021). English has indeed become a dominant language in the modern world, with a significant presence in many aspects of lives. English is the official language of over 50 countries, including the United States, Canada, the United Kingdom, Australia, New Zealand, and many countries in Africa and Asia. It is also the language of international business, politics, science, and technology, with many international organizations, such as the United Nations, using English as their official language. Additionally, the importance of English as a second language is emphasized in many educational systems around the world, making it the most studied language worldwide.

Learning the native language along with English does not hinder children's eventual proficiency in English. Instead, being bilingual can offer cognitive benefits and aid in developing reading skills. In the long run, bilingualism can also create educational and professional opportunities. This is supported by research conducted by Paradis et al., (2018) where children with ASD who receive an early diagnosis and participate in intensive therapy and preschool programs are exposed to a greater amount of English. The study suggests that autistic children are exposed to English from an early age due to its predominant use in therapy and educational settings. The interview data from the study also revealed that the family interviewed for the study received advice from various sources, including therapists, daycare providers, and friends, to prioritize the use of English when communicating with their autistic children.

This Review Highlights Several Key Aspects, Which Can Be Summarized In The Diagram Below.

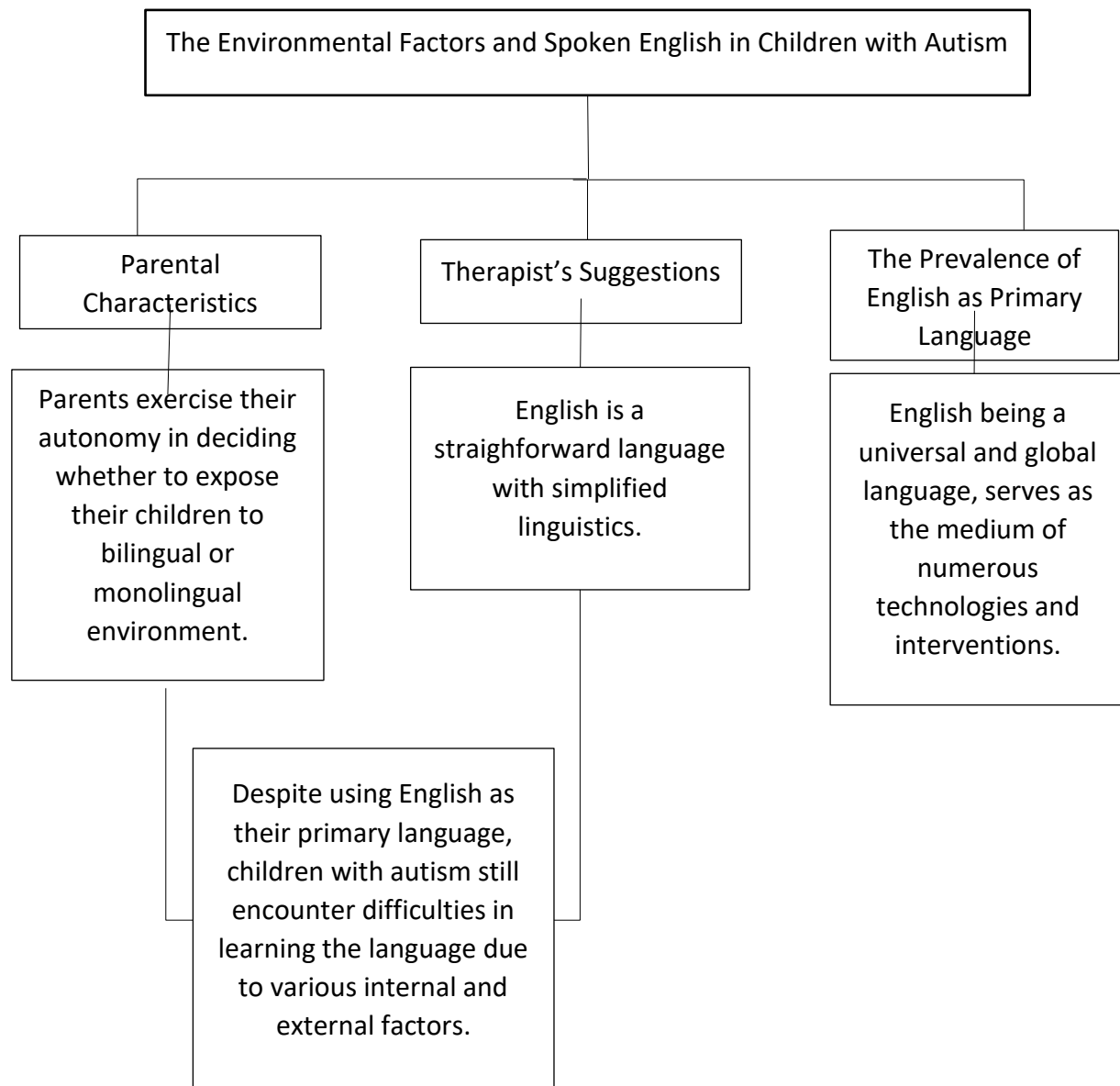


Figure 1: The Schematic Diagram of Some Key Aspects in Discussion and Conclusion

Discussion

The objective of the review paper is to analyse the environmental factors on the language development of children with autism, specifically focusing on their use of spoken English. This paper aims to gain insights into the decision-making process regarding language exposure for autistic children and examine the resulting outcomes. By examining the language choices made for autistic children and analyzing the effects of these decisions, it can enhance our understanding of the role played by environmental factors in shaping language development in this population.

Parents' Language Exposure

Parents engage in a significant debate regarding the language exposure and environment that would be most beneficial for their autistic children. Factors such as the parents' characteristics, recommendations from therapists, and the prevalence of English as the primary language are closely intertwined and impact the language choice made by parents. Based on several studies that have been examined, 5 out of 8 studies agree that parents' language exposure has a strong effect on language and speech development for autistic children. However, a study conducted by Howard et al., (2021), reveals that parents hold differing opinions on whether their autistic children should be exposed to a bilingual or monolingual environment. Some mothers argue that incorporating code-switching or alternating between their native language and English during conversations can enhance their children's cognitive flexibility and minimize distractions.

Additionally, Gilhuber et al., (2021) suggests that autistic children can strategically utilize code-switching in their communication. This indicates that language acquisition abilities are not solely dependent on parental language exposure, but also consider the autistic child's comprehension and learning skills, as well as their ability to differentiate between languages. It is crucial to acknowledge that individuals with autism possess diverse communication abilities and preferences. While some autistic children may proficiently engage in code-switching, others might find it more challenging or not engage in it at all. Therefore, it is necessary to evaluate each individual case individually, given the wide spectrum of communication abilities within autism.

Another viewpoint expressed in a research by Howard et al., (2021), is the concern of a group of parents who fear that their children may become confused by exposure to two languages. These parents opt for a monolingual approach, using only English as the primary language of communication, to prevent their children from experiencing distress caused by language overload. Despite English not being their native language, these parents prioritize English language proficiency for their children. Srikar et al., (2022), also indicates that parents express greater apprehension about bilingualism, often worrying that numerous languages could complicate their child or result in further language delays.

Recommendation by Clinicians

Therapists and clinicians, who possess expertise in language and speech development, play a crucial role in the lives of autistic children. However, findings from studies conducted by Kremek-Sadlik (2005) and Gilhuber et al., (2021) indicate that parents of multilingual autistic children, whose native language is not English, often receive advice from doctors or therapists to exclusively use English with their children, regardless of the parents' English proficiency. The rationale behind this advice is that clinicians believe English to be a simpler language with fewer syllables, making it easier for the child to comprehend compared to their native language (Hashim et al., 2021). However, it should be noted that these claims lack strong support and evidence from previous studies.

While some autistic children demonstrate strong language learning abilities, including acquiring English, others may encounter challenges related to communication difficulties, social interaction, or sensory processing. Hashim et al., (2022) support this observation in their research by highlighting that even if English is used as a primary language daily, autistic children may still experience difficulties due to factors such as limited social engagement and

impaired social interpretation stemming from their neurologically reduced social abilities. To enhance the language learning abilities of autistic children, it is important to provide appropriate support and accommodations tailored to their specific needs. Additionally, considering the child's interests and strengths when introducing or teaching English is crucial. While many autistic children can acquire English as a second language with appropriate support and an individualized approach, the rate and effectiveness of learning may vary among individuals. Throughout the language learning process, it is essential to celebrate their accomplishments and focus on their unique strengths.

Language of Interventions

Srikar et al., (2022) indicate that many parents choose to communicate with their autistic children in English, considering it as a language of interventions. English holds a prominent position as one of the most widely spoken languages globally, functioning as a lingua franca in many parts of the world. This is also true in Malaysia, where English serves as an intermediate language for individuals who speak languages like Malay, Tamil, and Chinese. Consequently, English is not unfamiliar to Malaysians, and a significant portion of the population possesses a sufficient level of understanding to engage in mutual communication and everyday conversations.

The extensive global reach of English contributes to a larger pool of resources, research, and expertise available in this language, making it more accessible for the development of interventions. English is widely employed as a medium of international communication, including within scientific and medical communities. Professionals involved in intervention development often prioritize English to facilitate the dissemination of interventions on a global scale and foster collaboration among a broader community of practitioners and researchers. This can be observed, for instance, in public transport systems like airports and train stations, where audio announcements are typically delivered in both Malay and English to convey information effectively.

Furthermore, parents perceive that providing formal education in English can lead to improved academic skills, increased job opportunities, and overall success in life. These beliefs contribute to the preference for English as a language of communication and instruction for their autistic children.

It is important to note that while English may be prioritized in certain contexts, interventions and resources in other languages are also valuable and necessary to cater to the diverse linguistic backgrounds of individuals with autism. Efforts are being made to develop interventions in various languages to ensure inclusivity and address the needs of different communities.

Conclusion

Numerous studies have identified environmental factors that support the acquisition of a second language in children with autism. Within the field of linguistics, the terms "first language" (L1) and "second language" (L2) are frequently employed to distinguish between an individual's native or primary language and any additional language(s) they acquire. A first language is specifically defined as a language learned during childhood. Saviile-Troiike (2006) suggests that the terms "first language," "native language," "primary language," and "mother tongue" are synonymous in scholarly literature, all abbreviated as L1. Conversely, an additional

language is referred to as a second language (L2), typically denoting an official or socially predominant language that is essential for education, employment, and other fundamental purposes. It is often acquired by individuals who have a different native language. For instance, bilingual language exposure by parents does not cause language or speech delays in autistic children. Previous researchers such as Conner et al. (2020), Drysdale et al. (2015), and Wang et al. (2018), , have shown that autistic children who are bilingual do not experience greater delays in language skills compared to their monolingual peers with autism. Being bilingual can offer significant advantages for individuals with autism, including social development, cultural connections, and overall well-being. Autistic children who can communicate in both their native language and English could comprehend the languages used by their family and community. The recommendations of therapists influenced the decisions made by parents (Hampton et al., 2017). Despite the recommendations that parents use English exclusively with their autistic children, the reasons behind this advice remain uncertain and there is a lack of conclusive evidence to support it. In summary, this review discusses the environmental factors that influence the language selection of children with autism who speak English proficiently. While these factors play a crucial role in language development, some lack sufficient research support.

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