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## ***Autism Spectrum Disorder people and bilingualism***

The aim of the article is to briefly characterise autism spectrum disorder (ASD) and to draw attention to the fact that a large group of ASD people (both children and adults) are exposed to second/foreign language. The goal is also to emphasise the role of scientific knowledge in the fight against popular beliefs and myths related to the negative influence of bi- and multilingualism on the ASD population. Unfortunately, such beliefs are still quite common, also among professionals. The article is comprised of a brief literature review. The majority of the literature is based on present-day studies on ASD bilinguals, although such research is scarce. Hence the article concludes that bi- or multilingualism of ASD children and adults is unavoidable; there is not enough scientific evidence on different aspects of the multilingualism of ASD people, although it is needed; available research evidence clearly shows that exposure to another language is of great importance to people with ASD as it improves, among others, the quality of their lives; there is no scientific evidence on the negative effects of cognitive load or communication problems for ASD people exposed to second/foreign language. On the contrary, it is shown that multilingualism is beneficial for ASDs.

**Keywords:** bilingualism, multilingualism, autism, spectrum, disorder, International Classification of Diseases, Asperger's syndrome, language

**Słowa kluczowe:** dwujęzyczność, wielojęzyczność, autyzm, spektrum, zaburzenie, ICD, zespół Aspergera, język



## 1. Introduction

It comes as no surprise that bilingualism and multilingualism are not new phenomena and that a lot of research has been conducted on bi- and multilinguals. The world has changed so much that nowadays it is expected an educated person speaks (at least) two languages, excluding their mother tongue. What is more, there is a lot of research that concludes that it is of great cognitive, social and psychological advantage for a person to know and speak foreign/second language(s), as well as to be in the process of learning/acquiring a language(s). The findings suggest that language exposure, as well as building greater openness to languages and to new learning is itself very beneficial. For example, fluent bilinguals always exhibit some level of activation of both languages and interaction between them. On conflict tasks, bilingual children fared better than monolingual ones. Bilinguals have an advantage in working memory, in representation and retrieval. They do better in switching, but also in maintaining attention. They occasionally have an advantage in inhibition, but also in selection, and they have the capacity to process information effectively and adaptively while adjusting to constant changes (Bialystok et al., 2012). The available research suggests that positive consequences of multilingualism are noticed across the lifespan and are related not only to having two languages available for communicative purposes, but also to improving chances for social contact, economic growth, and cross-cultural understanding. Additionally, multilingualism alters the brain and cognition in ways that counteract some of the negative consequences of illness and poverty and build resilience in stressful situations. The active use of two or more languages protects against cognitive decline in old age. This is especially important for healthy aging and for compensating symptoms of dementia, or some consequences of stroke (Kroll, Dussias, 2017).

Bilinguals (multilinguals) are often bicultural (multicultural). Biculturals are those who have been exposed to and have internalized two cultures. People become bicultural when they interact with two or more cultures and must at least partially live with them. As with persons becoming multilingual, this can start in early childhood and last throughout the whole lifetime (Grosjean, 2015). Thus, we have children from a minority culture who encounter a second culture at school, adolescents who are rooted in one culture and study in another, adults who leave their country for a variety of reasons, and even second- and third-generation immigrants who rediscover their native culture after growing up in the majority culture (*ibidem*). It is possible for people to become bilingual and bicultural at any point in their lives. Sometimes both elements develop simultaneously, but it is also

possible for someone to learn two languages first and then become bicultural after a few years. Conversely, it is also possible to begin as a bicultural person and only subsequently become multilingual. It is also possible to be bilingual without being bicultural and bicultural without being bilingual (*ibidem*).

At the same time a societal awareness of individual differences in people is growing. This relates to the increasing number of school children and students with certificates from psychological-pedagogical centers and those who need some additional support and help at school. Their needs result from the child's difference, caused by various deficits or excesses manifested at different stages of development in the somatic, mental and social spheres. Very often these young people belong to the group with special educational needs who require an individualised didactic approach and are in need of inclusive education. This group includes not only children with intellectual, physical disabilities, pupils with lower than average intelligence, children with sensory impairments (vision and hearing), and speech disorders, but also children with specific learning difficulties, children who are distinguished by the way they speak, the language they use, the culture they represent, and also children with outstanding ability (Bogdanowicz et al., 2007).

In the case of bi- or multilingual people the ways to their bi- or multilingualism can be different and these ways are all well documented, described and analysed in the literature. Irrespective of exolingual/exocultural (i.e. when the child's environment is monolingual, but the parents, or the educational system require the child to learn additional languages) or endolingual/endocultural (i.e. when bilingualism/multilingualism results from the child's naturally multilingual environment) conditions of learning or acquiring the language(s), time plays a crucial role. In the case of children this is especially important for young ones who acquire the language at home, in a bilingual family or bilingual society. The child needs the time to set up two (or more) language systems. However, if a child who is raised in a bilingual family/society (i.e. natural immersion) suffers from language disorders, time can be his/her opponent. This may be because of the incorrect and false belief that (simultaneous) bi-/multilingualism may be a reason for delay in language development. As a consequence, the moment of diagnosis of the reason of language disorder can be postponed which might entail negative consequences. One of the groups at such risk are autistic people. It is estimated that up to 25% of children suffering from autism spectrum disorder (ASD) grow up in bilingual environments (Trelles, Castro, 2019) so the problem is very important and relevant.

## 2. Autism spectrum disorder (ASD)

In its ICD-10 International Classification of Diseases and Health Problems, (1990), The World Health Organisation (WHO) classified, inter alia, childhood autism and Asperger's syndrome as holistic developmental disorders. However, in the new version of this classification, i.e. ICD-11 (2022), which has already been officially introduced by the WHO and is valid in some countries, there is no longer a distinction between childhood autism and Asperger's syndrome. Instead, there is a new category of 'autism spectrum disorders', which has been subdivided into subgroups based on the degree of difficulty in intellectual development and functional speech (*Dobro dziecka z autyzmem w...*: 4). By 2027 ICD-11 will completely replace the current ICD-10 classification.

Autism spectrum disorders are neurodevelopmental disorders and are considered a non-transient hidden disability. This means that people with autism are not distinguished in physical appearance from their typically functioning peers. The disorder lasts throughout a person's life, but with properly managed therapy it is possible to significantly improve the functioning of a child on the autism spectrum and consequently increase their chances of becoming independent in the future (*Dobro dziecka z autyzmem w...*: 9).

Although autism spectrum disorder is a developmental disorder (Baron-Cohen, 2008, Bluestone, 2007, Frith, 2003, 2005), the exact cause of ASD is not known, but neurobiological studies indicate abnormalities in specific brain regions. Genetic factors are also cited as a cause of ASD. Additionally, in about 25% of ASD cases, a variety of risk factors are identified, which may have led to brain damage during prenatal and perinatal periods (Ashwin et al., 2007, Gillberg, Cederlund, 2005, Pisula, 2008). The exact prevalence of ASD is not yet defined.

In Poland, there is no official data on ASD prevalence, though the number of diagnosed individuals is rapidly increasing (<https://synapsis.org.pl/autyzm/czym-jestautyzm/wystepowanie-autyzmu/>). Polish children with mild autism spectrum disorder (in ICD-10 called Asperger's syndrome) diagnosed by a psychiatrist or neurologist can attend public schools, integration schools, or, if necessary, special schools. Suitable education for students with mild ASD is crucial, as they require support in learning and accommodation of their needs and difficulties (Attwood, 2000, Griffin et al., 2006, Pisula, 2008). The diagnosis of ASD involves a comprehensive analysis of social interaction skills, daily functioning, cognitive and psychomotor skills, interests, and repetitive behaviors (Attwood, 1998, Pisula, 2008). Based on previous research on mild autism spectrum disorder (Asperger's syndrome), it can be stated that ASD cannot be cured and does not disappear. However, some

adults learn to better compensate for their deficits, although ASD symptoms remain noticeable (Preißmann, 2012).

Typical problems for individuals with mild autism spectrum disorder include difficulties in social interaction, limited behavior, activities, and interests. They often lack empathy, struggle to understand social situations, abstract language, body language, and non-verbal signs (Bock, Myles, 1999, Pisula, 2008). Their behavior tends to be stereotypical and repetitive, with specific interests and fixations. They prefer routines, as these make them feel safer (Jagielska, 2010, Preißmann, 2012, Świącicka, 2016). ASD is often accompanied by other dysfunctions, such as dyslexia, ADHD, and sensory integration problems. What is more, every individual with ASD has unique characteristics of the disorder. An interesting fact is that visual attention in people with ASD is driven by atypical saliency, particularly in relation to stimuli that are usually considered socially salient, such as faces (Wang et al., 2015). Individuals with ASD tend to think visually. Visual representations help them understand abstract concepts and complex processes. Without visual representation, they may take longer to seek and process information (Grandin, 2006). Moreover, people with ASD are generally more sensitive to light. Therefore, attention should be paid to the colors, types of materials, and lighting used in their environment (Randall, Parker, 1999, Ludlow et al., 2006). Difficulties of people on the autism spectrum may also include communication difficulties (avoidance of relationships, inability to establish contact), social difficulties (they may not understand social norms, or establish relationships with peers, they may be egocentric, show atypical behaviour and reactions), difficulties in the area of emotions and less typical behaviour (attachment to patterns, aversion to change, repetitive, routine behaviour, overreactions to stimuli, etc.) (*Dobro dziecka z autyzmem w...*).

All these difficulties are of significance and should be well understood, because increasing numbers of children are being diagnosed with autism spectrum disorder (ASD) and more and more children are growing up bilingual in various nations.

### **3. Bilingualism and ASD**

Given the large number of bilinguals and children growing up in multilingual settings, it is reasonable to assume that a sizable percentage of children on the autism spectrum are exposed to many languages (Gilhuber et al., 2023).

It is a well-known fact that there are many criteria to be taken into account when formulating a definition of bilingualism. One of the most

important criterion is the method of ‘achieving’ it, i.e. early, unconscious second language acquisition (natural immersion) and foreign language learning at school etc. Research on the bilingualism of children with developmental deficits is primarily concerned with the specificity of the acquisition of both languages in a natural immersion situation. Most often, these studies refer to children from mixed families, and natural conditions of language(s) acquisition refer to attending school in the target country and/or being in a second language-speaking environment (i.e. endolingual/endocultural conditions). In the case of successive bilingualism, researchers additionally seek to verify that these children can become speakers of the foreign language without this adversely affecting their level of competence in the first language (Karpińska-Szaj, 2022).

However, it is a prevalent misconception that bilinguals are fluent in two languages. The majority of them really lack equal fluency in their languages. Many of them have an accent in at least one of them, and many of them learned their second language or languages as teenagers or adults. What is more, bilingual people use their languages to achieve diverse goals in various spheres of life. While some bilinguals are unable to read or write in one of their languages, many are more proficient in another (Grosjean, 2012). That means that in the case of bilingualism there may be wide variations in the level of language proficiency, as well as its usage in various spheres of life.

It is good to remember that nowadays bilingualism is viewed as a specific type of multilingualism, which is defined as the capacity to use multiple languages (not perfectly), that there is interaction of these languages in the mind of the user, and that the communicative competence of the user is compromised of the entirety of their linguistic and cultural experience (Otwinowska-Kasztelanic, 2018).

In past decades there existed many false beliefs related to multilingualism and its effect on people, especially those with (neuro)developmental disorders. For example, in several studies that ask parents about the advice they received from practitioners (Kay-Raining Bird et al., 2012, Hampton et al., 2017), it appears that it is frequently believed that the best course of action for autistic children is to preserve a monolingual, majority language environment. Although most practitioners had positive opinions about bilingualism, Howard et al. (2019) discovered that this was not always the case. Many expressed worries that learning a language would not be possible for all autistic students and could have detrimental effects on the learning of children with language delays. The present studies show they were incorrect. For example, today it is known that multilingualism is beneficial at every stage of human life. It is

also known that multilingualism opens babies and children to new language learning more, than with their monolingual peers. Language mixing in bilingual children is nothing to be afraid of as codeswitching is a common feature of bilingual discourse and an example of a cognitive approach that allows listeners to take advantage of multilingual speech characteristics while they are being created (Kroll, Dussias, 2017). Studies on bi- and multilingual children with various developmental deficits do not indicate that the acquisition of two or more languages would impair the development of these children's linguistic competence (Uljarević et al., 2016). Bilingualism does not cause additional difficulties for children with specific language impairment (SLI) (Haman et al., 2018). What is more, nowadays multilinguals are the evidence that language experience shapes the mind and the brain (Kroll et al., 2015). It is important to note that research on the bilingualism of children with disabilities and deficits is mainly concerned with language acquisition in the majority language environment, but findings from observations of interlingual influences in language acquisition allow the formulation of research hypotheses in the area of formalised teaching and learning (Karpińska-Szaj, 2022).

However, research on children with autism who are raised in multilingual (naturally immersive) environments is still lacking. This is the case despite the fact that over half of the world's population is thought to be multilingual. Only two profiles of bilingual autistic people have been described in most research on bilingualism in autism to date: (1) autistic children raised in bilingual environments and a description of the linguistic or cognitive development of the autistic child (simultaneous or early bilingualism of autistic children raised in a bilingual family); and (2) case studies of autistic self-taught polyglots and a description of their development (Digard et al., 2020). Accordingly, the variety of language history profiles widely reported in the non-autistic community is not reflected in the existing literature on autistic bilinguals (Grosjean, 2010).

In the school context (in the case of successive bilingualism), it used to be believed that children on the autism spectrum should not learn foreign languages. It was believed that there was no need to erect another communication barrier because they already had so many. Although there are not many proponents of this strategy nowadays, the literature does not contain many studies demonstrating the benefits of bilingual education for students on the autism spectrum (Bradley, 2019). However, it is currently recognized that students with ASD are as capable as possible of learning a foreign language and can achieve noticeably superior results in this domain, particularly when the teacher considers the unique educational requirements of the student (*ibidem*).



Unfortunately, in the case of children with developmental disorders there still exist some myths and false beliefs related to their bilingualism (or multilingualism). For instance, due to the belief that studying two languages or through two languages will make learning difficulties worse, dual language instruction in preschool or school is considered inappropriate for children with a range of learning challenges. This way of thinking is frequently used with children who have developmental disorders that involve language learning difficulties (like autism spectrum disorder, Down syndrome, or SLI), as well as children who have academic difficulties that may be related to their sociocultural background (low socioeconomic status, or membership in a minority ethnic group) or poor academic ability (Genesee, 2015). As a result, education professionals and speech-language specialists sometimes suggest parents of children with such challenges to raise their children monolingually at home or at school, and not to expose them to another language. However, the most significant present-day research conclusion is that children with developmental disorders who are (or are becoming) bilingual do not differ significantly from monolingual children with the same disorders. However, it is observed that when these children are compared to those with no such disorders they do demonstrate more language-related difficulties. It seems clear that multilingualism does not put children with developmental disorders at the risk for language difficulties (ibidem).

This is also the case of ASD children, as ASD is a neurodevelopmental disorder and is related to, among others, communication problems. As a consequence, some believe multilingualism puts ASD children at risk of poor language outcomes and other difficulties (Genesee, 2015). However, there is research evidence that bilingualism has no adverse effects on ASD children's language and communication skills (Yu, 2016), in both simultaneous and successive bilingualism.

It is crucial to emphasise that the multilingualism of ASD children and adults is related not only to possible cognitive load and communication limitations, but recently it has also been linked to well-being and social life. There are studies that show the positive role of bilingualism and multilingualism in autistic adults' lives, reflected by an increase of its quality (e.g. Tammet, 2017). Not only is it suggested that bilingualism is harmless to cognitive processes in ASDs, but its positive influence on the social and communication skills of ASDs is pointed out (Digard et al., 2020).



## 4. Discussion and conclusions

Compared to the neurotypical population, little is known about the language and cognitive impacts of bilingualism in autism (Drysdale et al., 2015, Digard et al., 2020, Davis et al., 2021, Davis et al., 2024). Some opinions, also those repeated by the professionals, are based on false beliefs and myths and have nothing in common with scientific findings. However, they can be very harmful for ASDs and may have negative consequences on the (life) choices made, for example, by parents of ASD children. A comprehensive understanding of the linguistic characteristics of bilingual children with autism spectrum disorder is necessary for clinical therapy in culturally and linguistically diverse societies (Paradis et al., 2021).

The fact is that the occurrence of developmental disorders in bilingual and multilingual children is just as frequent as in monolingual children. It is not true, however, that they are caused by bi- or multilingualism. Much more problematic in this case is the early detection of disorders and developmental disorders, due to the extremely pervasive, damaging and normative threatening myth that bilinguals have slower speech development and children are entitled to atypical behaviour (Haman et al., 2018). Of particular concern is the late diagnosis of autism spectrum disorders. Axial symptoms, often indicative of profound deficits, are interpreted as ‘typical’ of bicultural children, often associated with emotional difficulties in adapting to a new environment and communication difficulties. Parents are usually advised to wait until the child gets used to the new situation, which drastically reduces the chances of effective therapeutic help. The diagnosis of mild autism (Asperger’s syndrome) is even more difficult, because the symptoms at the early stages of the child’s development do not have to be significantly intensified, often concern the social sphere and are not associated with profound speech disorders (Korendo, 2022).

In practice, there is currently no empirical support for preventing children with developmental difficulties from learning two languages. In order for bilingual children to fully learn both languages, parents and other caregivers need to actively take responsibility for making sure children receive enough exposure to both languages. Although there is little evidence, it also appears likely that multilingual children require consistent, ongoing exposure to both languages in order to fully acquire them. It is probably best to avoid abrupt shifts in exposure and/or irregular exposure (Genesee, 2015). The results of different present-day studies do not indicate that exposure to more than one language has a negative impact on the communication skills of children with autism.

It appears that the bilingualism diversity of the autistic population does not reflect the bilingualism diversity described in the non-autistic population (Digard et al., 2020). Another problem is insufficient amount of data on ASD and bilingualism. Although bilingualism is widespread and growing around the world, there is a dearth of published information to help parents and professionals make decisions on bilingualism for children with autism spectrum disorder (Valicenti-McDermott et al., 2012). When it comes to raising autistic children who speak many languages, parents continue to express a lack of support from professionals and services (Digard et al., 2020) which is a serious problem that should be solved.

To sum up, despite the lack of a formal link between multilingualism and developmental disorders, the diagnostic situation of bilingual children for non-normative development is significantly more difficult than that of monolingual children (Haman et al., 2018). Research on the impact of multilingualism on cognitive and affective development is still ongoing and yields mixed results, but the attention of researchers should also be directed towards children with dysfunctions, due to the myths still being spread about developmental differences observed in multilingual and multicultural situations. The results of these studies should form the basis of the diagnostic assessment of children's development in the case of bilingualism (Korendo, 2022).

Regarding bilingual education, research continuously shows that children who participate in second language immersion-style bilingual programs and speak a majority first language eventually achieve academic success and native language proficiency on par with, or better than those in monolingual programs (Padilla et al., 2013, Schwartz, 2014). Even when the two groups are matched for socioeconomic and intellectual characteristics, there is evidence that students in enriched immersion programs do better on tests in their first language than students in monolingual programs (Genesee, 2015, Holobow et al., 1987). Research also shows that, in the case of successive bilingualism, learning a foreign language (at school etc.) is associated with linguistic and cognitive benefits for people with (neuro)developmental deficits, in that they use the skills they acquire to improve their competence in their mother tongue (see Karpińska-Szaj, 2022; Haman et al., 2018).

Guidelines with strong empirical underpinnings are necessary for parents and practitioners to use as a basis for responding to inquiries on language usage. Overall, bilingualism has not yet been shown to have any negative consequences on language development or traits associated with autism (Prevost, Tuller, 2022).

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Received: 6.01.2025

Revised: 28.02.2025