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THE ADVANTAGES OF BILINGUALISM OF DEAF AND HARD OF HEARING CHILDREN^a

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SUMMARY

The population of deaf and hard of hearing children is very heterogeneous and, because of this, the existence of different approaches is needed in education in order to meet their communication and educational needs successfully. Hearing and speech impairment leads to certain specificities and difficulties in the development of these children, which requires adequate methods and approaches in the process of rehabilitation and education, and great support and encouragement from the family, the preschool institution, the school and the environment.

Results of numerous studies indicate that the best approach in education, for most of the deaf children, is bilingualism, or bilingual approach. Bilingualism is knowledge and regular use of sign and spoken language in deaf and hard of hearing children. Bilingualism of the hearing is different from the bilingualism of the deaf. Bilingual normal hearing children, as well as deaf children, learn two languages. The difference is that they learn a second language through auditory means, in the same modality as a first language. Deaf children learn two languages in two modalities, which is considerably more complex.

The basic objective of the paper is to, by reviewing the available literature, point to what the advantages of bilingualism in deaf and hard of hearing children are. Bilingualism is an advantage to typically developing children; likewise, it is an advantage to children with permanent hearing loss, beyond the points raised earlier. Exposure to sign language does not hinder the development of spoken language or any other cognitive development; to the contrary, many cognitive, social, and educational benefits follow from bilingualism.

Key words: bilingualism, advantages, deaf and hard of hearing children

INTRODUCTION

Bilingualism of a deaf child means the knowledge and regular use of sign language, which is used by the community of the deaf, and the spoken language, which is used by the majority who can hear. Knowing and using sign and spoken language, deaf and hard of hearing children will realize their full potential in intellectual, speech and social development (Kovačević, 2019).

Bimodal bilingualism is defined as using two languages in two modes, both visual and auditory, signed language and spoken language (Mitchiner, 2015). This is type of bilingualism that employs two different input-output channels, one involving spoken language and the other involving sign language (Atulebi & Clahsen, 2016).

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The concept of dual language use of spoken and sign language by deaf children and adults is referred to in various ways in the literature, with bimodal bilingual being just one of the terms used internationally. Other terms include: sign bilingual, bilingual deaf education, bilingual-bicultural and co-enrolment.

Bilingualism is the knowledge and regular use of two or more languages. Bilingualism of the “sign language - spoken language” type is the only way for the deaf child to meet its needs, ie. to, from an early age, communicate with its parents, develop its cognitive ability, get to know the world, communicate fully with the environment and acculturate into the world of those who hear and the world of the deaf (Grosjean, 2001).

Bilingual research with hearing speakers has consistently found that proficiency in two or more languages results in better mental flexibility and cognitive control, which persists through late adulthood and may delay the onset of dementia by as much as four years (Bialystok, Craik, & Freedman, 2007). Bilingualism in both hearing and deaf people leads to more creative thinking, particularly in problem solving, and to more creative verbal processes (Kushalnagar et al., 2010).

Bilingual development of deaf and hard of hearing children

Bilingualism brings many cognitive, communicative and cultural advantages. Bilingualism has positive effects on metalinguistic awareness, executive functions and cognitive abilities (Barac & Bialystok, 2012; Goldstein & Bunta, 2012).

Bimodal bilingualism of deaf and hard of hearing children is defined as the use of two languages (sign and spoken language) in two modalities (visual and auditory). The bilingualism of the hearing persons is different from the bilingualism of the deaf. Bilingual hearing children learn two languages, just like the deaf children do. The difference is that the second language (L2) is learned in auditory manner, in the same modality as the first language (L1) (Knight & Swanwick, 2002). Deaf children learn two languages, in two modalities, which is much more complex. When hearing children are learning a second language (L2), it is completely accessible to them and it is not limited by any physical factors. Deaf children cannot hear their second language (L2) completely. Deaf children of deaf parents naturally adopt sign language at home and learn L2 formally at preschool institutions, although they often adopt both languages simultaneously (Kovačević & Đoković, 2019).

Over the years, educators have questioned whether exposing young deaf children to bimodal bilingual input would impair their ability or motivation to achieve age-appropriate language acquisition and literacy levels (Mayer & Leigh, 2010) and to learn spoken English (Hyde & Punch, 2011). When evaluating the effectiveness of bilingual programs for deaf children, there has been a dearth of empirical evidence of improved language and academic outcomes that are equivalent to those of their hearing peers.

Early bilingualism in hearing impaired children (knowledge of sign language and spoken / written language) is invaluable for their development (Kovačević, Đoković, Isaković, & Dimić, 2020). Appropriate and effective early communication, regardless of within which linguistic modality (sign or spoken) it takes place, together with the acceptance of the child and its impairment, is the basis of successful cognitive development and the development of the child's personality, which is the basis of

communication and of building the language skills (Ann, 2001; Meir, 2002; Perniss, Pfau, & Steinbach, 2007).

Bilingualism refers to the phenomenon of knowledge and regular use of two languages. Many studies speak of the positive impact of bilingualism or the adoption of a non-native language on the development of various forms of meta-language ability, and that leads to the conclusion that the adoption of language is not only a process of acquiring communication skills, but also a formative factor that influences the overall psychological development of the child (Titone, 1994). Research in the field of bilingualism and cognitive functioning has shown that early bilingualism and constant, everyday use of two or more languages lead to earlier maturation of certain cognitive processes in children (Bialystok, 2001).

Sign language is a language that deaf children spontaneously adopt and learn, like normal hearing children adopt the spoken language of their environment. The adoption of sign language eliminates the problems of limited receiving of messages and limited communication. When communicating with a deaf child, speech that is followed by a gesture-sign should be used until the child learns spoken words and understands their meanings (Kovačević, 2012).

Sign and spoken languages include various perceptual and productive systems. While spoken languages include mechanisms of auditory processing and speech production, sign languages are perceived visually, and their articulation involves the systematic use of parts of the body and space (Kovačević, 2013; Plaza-Pust, 2005).

When teaching deaf children sign language and spoken language, the most important thing is to provide an environment and situations that are stimulating enough to motivate a child to communicate using both languages. One of the basic assumptions of the bilingual development of deaf children is that it is necessary to provide them with opportunities to communicate interactively with both their peers and adults, both with hearing and deaf people, both in sign language and in spoken language. It should be borne in mind that the language has its own spoken, written and sign expression, and these expressions should be used both together and individually (Ardito, Caselli, Vecchieti, & Volterra, 2008).

Bilingual development of children with CI

Earlier studies on bimodal bilingualism mostly focused on studying the bimodal bilingual development of hearing children of deaf adults (CODAs) who acquired signed and spoken language from birth (Berent, 2004; Emmorey, Borinstein, Thompson, & Gollan, 2008; Emmorey & McCullough, 2009). Recent studies on cochlear-implanted children's language outcomes began to include those who use sign language and spoken English at their early ages (Davidson, Lillo-Martin, & Chen Pichler, 2013).

Hassanzadeh (2012) compared the spoken language outcomes of seven deaf children with cochlear implants who have deaf parents with a similar group of deaf children with cochlear implants who have hearing parents. The study results showed that the children with Deaf parents outperformed children with hearing parents in their speech perception, speech production, and language development, leading Hassanzadeh

to conclude that early access to sign language appeared to enhance their abilities to develop spoken language after cochlear implantation.

Similar evidence was found in Rinaldi and Caselli's (2014) recent longitudinal study on language development in a bimodal bilingual child with cochlear implants. The child was raised in a bilingual environment with hearing parents and siblings using Italian Sign Language and spoken Italian and also attended a day care that used bimodal bilingual approaches. Multiple linguistic measures were used to assess the child's lexical development in language comprehension and production periodically during the 3 years of the study, from 2.6 to 5.1 years of age. The results indicated his language skills were at the same level as those of his monolingual hearing peers. The researchers suggested that signed language supported the acquisition of the second language. This study also suggested that a bimodal bilingual environment is achievable with hearing families by providing their children with cochlear implants access to both languages as well as both the hearing and deaf communities (Mitchiner, 2015).

Nowadays, there are around 80% of cochlear implanted children in the developed world, which enables them to develop the approach to sound at an early age and helps them develop speech. However, due to the changes in brain plasticity in early childhood, children who did not acquire language at their earliest age cannot be fluent in any language. If the exposure to the natural language is skipped, their later development of cognitive activities may be insufficiently developed (Humphries et al., 2012).

Alternative approach to language acquisition is the use of sign language, such as American Sign Language (ASL). Sign language is subject to the same limitations of the speech and language development. There are no reliable predictors of success with cochlear implants. The family of a deaf child is frequently advised against exposing the child to sign language. These absolutely ideological positions put pressure on the parents and may actually jeopardise the developmental needs of deaf children.

There is evidence to be found in the literature that exposure to sign language enhances, rather than reduces, spoken language development (Preisler, Tvingstedt, & Ahlström, 2005; Yoshinaga-Itano, 2006). Authors reported on children whose early development of sign language appeared to facilitate their development of spoken language after cochlear implantation and suggested that any modality plays a major role in the development of spoken-language development.

Hyde and Punch (2011) investigated the modes of communication used by deaf children who had received cochlear implants and reported that access to both spoken and sign language does not lessen the proficiency of children's spoken language development. Authors claimed that exposure to a bimodal bilingual input in fact optimized deaf children's cognition and language at critical stages in their development. Furthermore, there is considerable research evidence that children who are bimodal bilinguals use both languages as part of a language continuum rather than their communication mode remaining static (Watson, Hardie, Archbold, & Wheeler, 2008). This finding is further supported by reports of interviews with deaf young people with cochlear implants, who stated that they use whichever language is best suited to their needs at the time (Wheeler, Archbold, Hardie, & Watson, 2009). From all accounts, therefore, deaf children are able to make use of both language modalities to an extent

determined by the level of their sensory impairment, the quality and frequency of input and their motivation to communicate (Mirus & Napoli, 2018).

All children need to acquire language. Some deaf children acquire a spoken language via an assistive aid, such as a cochlear implant, but there is little predictability as to which children will succeed (Yoshinaga-Itano, Baca, & Sedey, 2010). In contrast, a sign language is accessible for all deaf children and many now recommend that all deaf children learn a sign language, with the idea that, if they happen to also acquire a spoken language, they will have the added benefit of being bimodal-bilingual, but in no case, will they be linguistically deprived (Hall, 2017). Deaf and hard of hearing children who sign have better academic achievements, including reading.

Advantages of sign language acquisition

While children easily acquire any accessible natural human languages (spoken or signed) to which they are regularly exposed (Sandler & Lillo-Martin 2006), the acquisition of a first language must take place before the critical period, which may be as early as five years old. If not, children may well have difficulties becoming fluent in any language — they will be linguistically deprived. Research in developmental psychology has found a correlation between reduced language abilities and social difficulties. The development of language is critical to the organization of memory, mastery of cognitive skills such as numeracy and literacy, and many other aspects of cognitive development. High proficiency in a language permits a child to engage in social interactions with family and peers, and cognitive development is enhanced by environmental stimulation. Successful social interaction calls for a higher order of cognitive processing, called executive functioning, which has been significantly positively associated with language ability (Figueras, Edwards, & Langdon, 2008). It is, therefore, critical that a deaf child becomes a fluent signer. Further, in the absence of a signing environment, deaf children tend to develop a gestural system of communication with those around them, anyway (Goldin-Meadow, 2005). It is far better in terms of both cognitive development and communicative range to give them bona fide language. This recommendation is further supported by a neuroimaging study that reports greater activation in language-specialized regions of the brain in signers when they view sign language, as opposed to non-linguistic gestures. Finally, language is language, regardless of the modality. Integration and differentiation processes within a linguistic system and across different linguistic systems aid development of language in general, thus, learning sign language can help a child master a spoken language (Kushalnagar et al., 2010).

For children who are deaf or hard of hearing and cannot fully access linguistic meaning through audition, the use of ASL has been documented to promote linguistic, communication, cognitive, academic, and literacy development as well as social emotional growth and identity formation. Evidence also indicates that there is a risk of language delay if an accessible language is not used as early as possible, even for children who have some level of access to spoken language through a hearing aid or cochlear implant (Mayberry, Lock, & Kazmi, 2002). The brain has the capacity to acquire both a visual and a spoken language without detriment to the development of either, and there

is no documented evidence demonstrating that ASL inhibits the development of spoken English (Marschark & Hauser, 2012).

Studies of sign language acquisition in children show that sign language development is comparable to spoken language development. This knowledge is mainly based on research in the

USA and the UK with deaf children of deaf parents, demonstrating that early fluency in sign language leads to equivalent word and sentence level milestones and pragmatic skills (Swanwick, 2016).

Deaf children who are exposed, from the earliest age, only to sign language go through the same basic levels of language acquisition as normal hearing children who learn to speak in their environment (Kovačević & Isaković, 2019). Anderson (2006), points out to the data obtained by Anderson & Reilly (2002) in their study. The obtained data points out to remarkable similarity of the first signs and words in ASL - American Sign Language and English spoken vocabulary. These authors point out that it is evident that from the age of 18 - 23 months, the productive vocabularies (of signs or words) of deaf and normal hearing children, when compared, are more or less the same.

The list of the first words, or gestures-signs that children adopt, points out to very strong similarities between the early lexical contents in deaf and normal hearing children. The first signs-gestures of deaf children are semantically similar to the first words that are produced by normal hearing children. In the phase of single-element statements, deaf children also use isolated signs or words - nouns or verbs (for example: mother, father, baby, eat, drink, milk, ball, dog ...), just like normal hearing children do (Mayberry & Squires, 2006).

The family of a deaf child is well-advised to learn a sign language, because language communication is an integral part of family health and happiness, as well as of the deaf person's health and happiness (Kushalnagar et al., 2011; Mirus & Napoli, 2018).

Bilingual communication in a family of deaf and hard of hearing children

Its family is extremely important for developing and shaping the personality of the child. Its family provides the child with the experience of belonging to the community and the experience of the value of the family as an institution. A child's natural environment is the family environment, which has an irreplaceable role in the shaping of its personality. Within the family, the child gains emotional experiences, learns the rules of interpersonal relationships and of behaving in the society (Kovačević & Đoković, 2018).

Due to hearing impairments and a changed way of communicating with the environment, deaf and hard of hearing children develop under more unfavorable conditions than normal hearing children. A large number of deaf and hard of hearing children have specific problems in the fields of communication and interaction. The child's inability to communicate with family and other children isolates it, with the passage of time, and leads to deeper difficulties in the social and emotional plan and overall development.

Communication is one of the fundamental elements of living, because its use is for the communication of people in a certain community. Communication or language provide the society with a medium and means for socializing its members.

About 90% of deaf children were born in families with two hearing parents, 7% have one deaf parent, and only 3% have two deaf parents (Marschark, 1993). Approximately 5-10% of deaf children adopt sign language from their deaf parents (Mitchell & Karchmer, 2004). Most deaf children grow in a completely normal hearing world in early childhood. Also, most of the hearing parents of deaf children have no knowledge, or have poor knowledge of sign language, which has significant implications for the development of the deaf child.

Around 96 percent of children with hearing loss are born to parents with intact hearing, who may initially know little about deafness or sign language (Moore, 2001). Therefore, such parents will need information and support in making decisions about the medical, linguistic, and educational management of their child. Some of these decisions are time-sensitive and irreversible and come at a moment of emotional turmoil and vulnerability. Clinical research indicates that a deaf child's poor communication skills can be made worse by increased level of parental depression (Kushalnagar et al., 2007). Given this, the importance of reliable and up-to-date support for parents' decisions is critical to the overall well-being of their child. In raising and educating a child, parents are often offered an exclusive choice between an oral environment (including assistive technology, speech reading, and voicing) and a signing environment (Kushalnagar et al., 2010).

For the deaf children of hearing parents, their first language will be spoken language. If hearing parents choose sign language, it will not be adopted in the same way as is the case with the deaf children of deaf parents. Hearing adults use spoken language simultaneously with sign language, and in addition to that, their skills of emission and reception of sign language are often incomplete and are under strong influence of the structure of spoken language.

Deaf children (usually of hearing parents) who are beginning to learn sign language after the critical period for language acquisition (until the end of their fifth year of age) have, on average, worse language skills in sign language. The development of sign language fluency for this group of deaf children is problematic as they experience a general delay in sign language development and difficulties in catching up. This has been evidenced through scores on standardised sign language assessments (Herman & Roy 2006) as well as general language comprehension (Rodríguez, 2007) and early pragmatic and narrative competence (Becker 2009; Surian, Tedoldi, & Siegal 2010).

This delay is explained in part by the limited access to everyday conversation and routine interactions, such as story telling or parental commentary around a shared activity. Hearing parents reportedly find it difficult to learn sign language as adults, as a second language (L2) (Napier, Leigh, & Nann 2007; Von Pein & Altarriba 2011). Even though many of these families do develop their own *homesign*, these communication strategies do not fulfil the experience of early access to a fluent language from birth (Janjua, Woll, & Kyle, 2002; Morford & Hänel-Faulhaber, 2011; Swanwick, 2016).

The deaf child requires to be included in the process of rehabilitation of hearing and speech early, which is a prerequisite for the child's progress in language development

and speech development, as well as in psychosocial and emotional development. It acquires its experience in various ways, but its most influential and most responsible teacher is its parent. Parents should be educated about hearing loss, its consequences and communication, upbringing and education of the deaf child (Kovačević, Isaković, & Dimić, 2016).

Bilingual educational approach

Many deaf children are raised strictly orally, but the auditory information they receive through hearing aids and cochlear implants may not provide language access. "A bilingual approach protects academic success since exposure to an accessible language is the key to developing native-like proficiency in any language, and a solid first language foundation is also critical for the successful acquisition of a second language" (Mounty, Pucci, & Harmon, 2014, p. 334). Regardless of their speech skills, deaf children who feel confident in signing do better academically in reading (Scott & Hoffmeister, 2017) and writing (Basha Ludago, 2014), whether their parents are hearing or deaf (Hassanzadeh, 2012).

A bilingual educational approach gives deaf children the opportunity to learn sign language and spoken/written languages and grants them access to the curriculum in whichever language is most accessible to them in an environment that values deafness, sign language and deaf culture (Swanwick, 2010). This approach has been labelled *sign bilingual* in some contexts and *bilingual bicultural* in others (Marschark & Lee 2014). The term *cross-modal bilingualism* is also used to indicate the use of two different languages and two different modalities (Menéndez, 2010).

For the development of language, deaf children should be exposed to good language models in a signed language as soon as deafness is detected. There is no advantage to delaying exposure to sign language, and research on the development of language has found that early exposure reduces the risks of linguistic deprivation, which is frequently associated with cognitive impairment and psychosocial isolation (Swanwick, 2016).

The acquisition of sign language has educational benefits. Many studies report that deaf children who sign, regardless of other factors (such as whether their parents are deaf or hearing and whether or not they have assistive hearing devices and/or oral training), achieve better in school than those who don't sign. A recent study concludes that skill in ASL, above other possible factors, correlates strongly with achievement in reading, suggesting that the linguistic basis of reading can be bimodal as well as bilingual (Chamberlain & Mayberry, 2008).

The deaf children of deaf parents achieve significantly better results than the deaf children of hearing parents. They control the language of the hearing environment better, have better school achievements, are emotionally more mature, have greater self-esteem, are more independent, have less behavioral disorders, even achieve better results on nonverbal tests of intelligence than the deaf children of hearing parents. They have shown that sign language is useful, and not harmful, for the overall development of the child (Marschark, Schick, & Spencer, 2006; Swanwick, 2016).

Bilingual education programs for deaf children are springing up all over the world. Bilingual/bicultural educational programs differ in pedagogical approach; all stress

the importance of sign language as a language for the exchange of academic ideas, but some support voicing of spoken language as well, while others pair sign with the written language of the country (Kovačević, 2013).

The identification and recognition of sign languages in the world has resulted in changes in the policy of educating deaf children. Thirty years ago, bilingual schools for deaf children, in which sign language had the status of the first language, and the language of the hearing environment is learnt by deaf children as a second language, appeared in the world. In bilingual schools, deaf children learn both languages (sign and speech), adopt meta-language knowledge about them, develop expression and creation in both languages, get to know both cultures, and the teachers know both forms of expression. Evaluation of such forms of the education of deaf children has shown excellent results (Kovačević, Isaković, & Arsić, 2019).

The bilingual-bicultural approach to educating deaf children has been very well designed and developed in the Scandinavian countries (Sweden and Denmark), and increasingly so in the other countries of Europe, America, and Australia, as well. The model of bilingual education is called the "Bi-Bi model" (bilingual-bicultural), i.e. a bilingual-bicultural model that implies the restructuring of the entire system of the education of the deaf, from early childhood, preschool institutions, schools, to faculties. This model implies the inclusion of children in the life of the deaf community, socializing with peers and adults, as well as the education of hearing parents of the deaf children in communicating in sign language. It begins with the application of early intervention programs in working with hearing parents and little deaf babies. Through early intervention programs, hearing parents are enabled to: learn the national sign language; have advisory assistance with regards to the treatment of the child; be involved in the life of the deaf community; socialize with adult deaf people and deaf peers of their deaf children.

Deaf adults play an important role as models for speech and social identification of deaf children. Education and employment of deaf teachers in kindergartens and schools for deaf children is necessary, as well. Young deaf persons are provided with university education with the support of an interpreter. In school work, new contents are first covered in sign language, and then in spoken language, whereby the integrity of the input of language information is ensured through the use of written word. It is important that a child understands that these are two separate languages, as a premise of transfer from the first to the second language. In communication and learning, the manually coded language of the hearing majority (speech followed by the sign) is not used, the original sign language of the deaf community is used instead. Deaf students learn about the specificities of the culture of the majority community in which they live, but also about the different specificities of their cultural community - history, artistic creation, customs and values of the deaf community (Bradarić-Jončić & Kolarić, 2012).

1. Over the last few decades, in developed countries and in our country, there has been a steady increase in the number of deaf and hard of hearing children in regular education conditions. Bilingual approach in the education of deaf children can be successfully implemented in regular education and training conditions, in regular preschool institutions and schools, through bilingual programs for the education of deaf children and the presence of sign

interpreters - educational translators (Kovačević, 2019). In the new models of integration of deaf children, which are more and more present in the world, efforts are being made to align the aims and requirements of the traditional models of educational integration and the requirements contained in the models of bilingual-bicultural education of the deaf. Such integration, as a rule, implies the so-called co-teaching (team teaching, cooperative teaching) model, where, along with the regular teacher, a sign language interpreter and a teacher for deaf children participate (Kreimeyer, Crooke, Drye, Egbert, & Klein, 2000).

2. Teachers, and teachers in kindergartens should be provided additional education on the specificities of hearing disorders and the education of deaf and hard of hearing children. The support that influences the educational achievements of deaf and hard of hearing children in regular educational institutions includes the degree and type of support by teachers and special education teachers, customized communication, appropriate amplification, precise interpreting into sign language and appropriate visual and acoustic surroundings (Luckner & Muir, 2001; Schick, Williams, & Kupermintz, 2006). For communicating with deaf and hard of hearing children, it is important to have equal access to information (Isaković & Kovačević, 2015). For the deaf children that use sign language, interpretation into sign language should be provided; for those who use written language, it is necessary to provide subtitles in the national spoken language; for children who prefer lip reading in a combination with listening it is necessary to have support from a speech interpreter. For the hard of hearing children, it is necessary to provide optimal conditions for receiving acoustic information by using, for example, FM (frequency modulation) systems in classrooms, or inductive loop at public events.

CONCLUSION

The rationale for raising and educating deaf children bilingually draws on principles of bilingual and multilingual communication from around the world. Bilingualism in signed and spoken languages, as it is used by a significant population of deaf and hearing adults around the world, is a practical goal in deaf education. It develops naturally in many families with deaf parents and hearing children without known deleterious effects. Just as millions of hearing children grow up speaking two or more languages that are structurally quite different (such as Chinese and English) without worry that the children will be at a disadvantage in learning one language if they speak the other, there has been no evidence that hearing children who grow up with sign and spoken language are at any educational disadvantage. Raising a child bilingually, with a bilingual/bicultural education is effective and ethical. Dual proficiency in sign language and spoken language affords a deaf child with the added benefit of adapting to both signing and non-signing peer groups with greater ease, which can result in better overall socio-emotional and behavioral development.

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