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Is the existence of special schools for deaf students under jeopardy? Selected aspects of international research in the field of deaf education

Abstract: In this article, an attempt is made to analyse selected factors influencing the current situation in the education of children with hearing impairment in Europe and worldwide. The attention is focused on exploring the importance of the impact of modern technology in providing children with hearing aids, hearing implants, undertaking early rehabilitation intervention and in the light of international education policy as a foundation for inclusive education. The key questions sought to be answered concern the dilemma of whether deaf/hard of hearing pupils need a special school or whether its existence is in jeopardy.

Keywords: deaf pupil, hearing aid treatment, early intervention, special school, inclusion, education policy.

Introduction

Hearing impairment is one of the most common birth defects in the world. Statistics from the World Health Organisation (WHO) indicate that more than 34 million children worldwide are affected by severe and profound sensorineural hearing loss. The prevalence of permanent hearing loss in newborns is approximately 0.5 to 5.0 per 1 000 infants worldwide, and in some low- and middle-income countries it is even higher (Olusanya, Neumann and Saunders, 2014). Among the Polish population, the number of children with hearing impairment between the ages of 1 and 7 ranges from approximately

0.5% to 2%. All these children should have access to early rehabilitation and education in the most favourable conditions, where their needs are met, as well as the opportunities to develop their potential provided. Until the last decades of the twentieth century, two systems of education for children with hearing impairments have operated alongside each other in the world: the segregationist and the inclusive one. What has changed in the recent years, what transformations have taken place in the rehabilitation and teaching of deaf and hard of hearing children? What has led many researchers, therapists working with children with hearing impairment to preach a solution to deafness and an end to special education facilities for deaf pupils? An attempt to answer these questions is made in the article.

Early diagnostic and rehabilitation intervention, modern hearing aid treatment technologies

Over the past two decades, one can observe the intensive development and progress in the field of medical sciences, e.g. in audiology, otorhinolaryngology and otosurgery. The associated dynamic changes in the use of modern technology expressed in the design of new generation hearing aids (HA) and increasingly sophisticated cochlear implants (CI) have prompted the release of hitherto unknown possibilities, which are changing the face of hearing disability, including the deaf community itself. The progress has created a new situation, which the whole world of deaf education has been confronted with.

Early identification of hearing impairment in children enables effective implementation of medical and rehabilitation procedures, as well as preventive ones. Universal Newborn Hearing Screening (UNHS), also known as the Early Hearing Detection and Intervention Programme (EHDI), is a strategy, which allows congenital deafness and hearing loss to be identified at a very early stage (Bałanda and Skurzak, 2009). Initially, hearing screenings were orientated towards newborns at risk of hearing deficits and they gradually became a standard procedure. Programmes to identify hearing impairment in young children have developed significantly over the past 10 years, and the indicators of their implementation continue to grow worldwide. Poland has been a forerunner in this regard. The first projects implementing the newborn hearing screening programme (NHS) were implemented in Poland more than 25 years ago, and the universal newborn hearing screening programme has been a standard since 2002, as a result of the work of Great Orchestra of Christmas Charity Foundation (Szyfter, Wróbel and Radziszewska-Konopka 2008). Currently, universal newborn hearing screening has

been implemented in most countries of the European Union, as well as in the USA, Australia and developed Asian countries. In 1998, a consensus was signed in Milan to conduct this type of screenings in Europe. A similar situation can be observed in the USA, where the average age of hearing defects identification has decreased from an average of mid-three years old (in the second half of the 20th century) to only the second, third month of the child's life. Currently, approximately 95-100% of newborn babies in the USA who leave the hospital have a screening done on the first or second day after birth. In 1993, this amounted to only 3% of newborns (Raimondo, 2011; Lenihan, 2010). The situation is similar in Poland, with the introduction of the Universal Hearing Screening Programme increasing the hearing defects detection rate to approximately 99% (Topczewska-Cabanek et al., 2015). However, in most LMICs (low- and middle-income countries) with low- or middle-income economies, newborn hearing screenings (NHS) are not common and are only available to certain populations (Yoshinaga-Itano, Manchaiah and Hunnicutt (2021).

A retrospective study of hearing-impaired children who have undergone universal hearing screening conducted in 2020, when analysed using electronic databases from multiple countries around the world (30 reports from 14 populations, including 7,325,138 infants screened by the UNHS), showed that with the introduction of the UNHS, the identification of hearing impairment had occurred earlier and interventions were initiated before 6 months of age, resulting in significantly improved developmental outcomes in early childhood, including the development of better language skills compared to children who were diagnosed later (Nelson and Bougatsos, 2008).

Providing hearing impairment devices with assistive listening to younger and younger children is progressing. Research data from various authors indicate that while in the United States, for example, there were only about 10% children among the 5,000 people fitted with hearing implants in 1990, by 2002, 50% of the 45,000 implanted patients were children. (Christiansen and Leigh, 2002). It is difficult to determine unequivocally how many children around the world have received cochlear implants so far, data from various sources differ. According to estimates based on voluntary reports from the manufacturers of registered devices of the US Food and Drug Administration (FDA), since December 2019, nearly 736,900 cochlear implants have been implanted worldwide. It is generally estimated that around half of cochlear implant recipients are children. In the US, nearly 118,100 devices have been implanted in adults and 65,000 in children.

The execution of early intervention programmes, including the provision of hearing aids, as well as hearing implants, to young children, have serious implications for the development of their language and communication skills and their subsequent acquisition of literacy (Yoshinaga-Itano, 1999). Most researchers support these findings, but note the large individual differences in the obtained effects (Tomblin et al., 1999; Svirsky and Neuburger, 2004). As Christine Yoshinaga-Itano, Vinaya Manchaiah and Cynthia Hunnicutt (2021) point out, despite the rich scientific literature, reports on UNHS from around the world, the analyses made have some limitations and cannot be considered to be fully representative. In particular, the quality of the included studies varied greatly and the conditions for randomised controlled trials were not always provided.

It is significant to note here that UNHS begins with screening at the newborn stage, followed by audiological monitoring to diagnose and fit amplification technology in the form of hearing aids, implants. However, the main intervention takes place during rehabilitation at home (the involvement and participation of parents is essential in the process) and should then be followed by a special education or inclusive system. Where are the best conditions for that? There is not a straightforward answer, given the incredibly varied abilities and needs of children diagnosed with hearing impairment and the conditions in which their rehabilitation takes place. Attention is drawn to the existence of a critical period for speech and language development, after which the child may not be able to master these skills to a high level. This knowledge has resulted in reducing the lower age limit for implantation to below one year, to fall within the period of greatest brain plasticity. The first pioneering surgeries in Europe for new-generation hearing implants in children before the age of one were carried out in 2009 in Poland under the direction of Prof. Henryk Skarżyński at the International Hearing and Speech Centre in Kajetany, and in Freiburg, Germany, under the direction of Prof. Roland Laszig, and in Pamplona, Spain, under the direction of Prof. Manuela Merique (PAP/Health Market, 2009). The validation of such early implantation has created unprecedented conditions enabling children with congenital deafness to have almost natural hearing development. However, research focused on the language skills of children with cochlear implants (CI), although very optimistic, showing a distinct increase in competence in most children, found it to be at a significantly lower level compared to the language skills of their hearing peers. Some researchers have also pointed out that the rate of these beneficial effects has slowed with the increase of linguistic complexity (Ertmer, Strong and Sadagopan, 2003; Schorr, Roth and

Fox, 2008). At this point in time, it is already known that the effectiveness of cochlear implants depends on many different factors and the assessment of their effectiveness must always be considered in an individual manner. Researchers from Europe, the United States, Australia have invariably emphasised the age of the child at the time of surgery, the duration of sensory deprivation, overall developmental potential, possible coexisting conditions including anatomical/physiological and technological factors, and family involvement in the hearing and speech rehabilitation of the child. The severity of the influence of these variables, which may have a significant impact on the effectiveness of hearing implants, should be, as mentioned above, considered individually. Recently, as the age of hearing-impaired children eligible for implantation has been significantly reduced in Europe and the United States, studies have been initiated aiming at the comparison of the receptive and expressive language skills of children who received cochlear implants before the age of 1 with the language skills of children who received implants between the ages of 3 and 4 years old. It has been determined that early implantation has a beneficial effect on the development of auditory function in children with hearing impaired since birth and that their speech development based on the auditory pathway is similar to that of an (age-matched) hearing child (Miyamoto et al., 2008).

An indication of how complex an issue we are addressing in these considerations is the fact that one can quote many other researchers emphasising that numerous studies on the impact of cochlear implants have focused solely on the clinical assessment of their effectiveness, derived from data relating to: speech detection threshold (SDT); speech reception threshold (SRT), the lowest speech signal intensity at which the examinee correctly repeats 50% of the test elements; degree and threshold of speech discrimination. The dilemmas to consider include if the measure of success is the ability to repeat the sounds, words, phrases, sentences heard by the child fitted with the implant, the development of passive and active verbal speech in the office of the audiologist and speech and language therapist for the hearing impaired. A desired outcome described in the research, perceived in this manner, can be confirmed by the vast majority of the CIs (hearing implants), as well as the greater value of purely auditory training-based methods over other methods of teaching deaf children. It should be noted here that regular intensive auditory-verbal training supplemented by multidisciplinary rehabilitation adjusted to the needs of the child does not always lead to the expected results in terms of full development of language and speech of the child with hearing impairment and the ability to socialise with hearing peers, to participate

spontaneously in play, to engage in conversations which bring satisfaction to hearing and deaf children. Research indicates that children with CI spend less time interacting socially in comparison to their hearing peers and face numerous difficulties in social interactions with their peers, and there are also problems related to the acquisition of social skills (Bat-Chava, 2001; Da Silva et al, 2022; Punch and Hyde, 2011).

The differences in the functioning of children with hearing implants observed in the studies may take multiple forms. Thus, there are children who benefit spectacularly, can function similarly to hard of hearing children (Tai and Lutman, 1994) and hear much better than prior to receiving an implant. There are also those who experience severe difficulties communicating under the adverse listening conditions often found in regular schools (general background noise, multiple people speaking at the same time, others speaking too fast). Other children, on the other hand, can only perceive ambient sounds and do not gain much benefit from the implant in oral communication with their hearing peers. Communication and socialisation skills of children with hearing implants have been shown to improve at different rates, but they depend on each other. Better communication is often associated with better socialisation of children. Deaf children whose speech is not clear and comprehensible enough for their peers may be rejected or ignored by their friends/colleagues, which affects their ability to socialise (Christiansen and Leigh, 2002; Ouellet and Cohen, 1999). With systematic hearing and speech rehabilitation, the progress is always observed, but at times the slow rate of development of the benefits of auditory implantation means that the child needs additional support in the form of non-verbal forms of language communication for harmonious overall psychophysical, emotional and social development (Bat-Chava, Martin and Kosciw, 2005)

The changes which have been brought about as a result of the achievements of new technologies and medical advances in recent years are immense, but the greatest success of this revolution is not, in my opinion, assistive listening devices as such, but the recognition of the importance of early diagnosis, rehabilitation (early intervention, support and stimulation of development) of the hearing impaired child, as the stepping stone, which becomes the foundation for all the developmental and educational success of the deaf child and later the deaf/hard of hearing adult. This does not change the fact that some children, as a result of early medical and therapeutic interventions, can fully benefit from hearing, they can speak, understand phonic and written language, communicate, learn without sign language support, nonetheless others need to have permanent assistance. There are also those

for whom sign language will be their primary form of communication, even though they use the newest generation of hearing aids and implants. In other words, among deaf children, CI and hearing aids users, extreme variation can be observed in the achieved effects of hearing and speech rehabilitation with the same level of involvement of professionals and parents. This phenomenon is observed in Poland, as well as in Europe and the United States. The result achieved by one child or a group of children is not necessarily replicated in a study of another group of children who have also undergone initial medical and rehabilitation intervention. The results can vary radically, as a large number of factors affect the final result.

The lack of spectacular successes in the development of phonic language, verbal speech is sometimes wrongly and unfairly, in my opinion, viewed as a failure. Using sign language is not a failure, it is an alternative way of developing the language of a person with a hearing impairment. Using the developmental potential offered by sign language, creating cultural values with sign language in the deaf community is evidence of extraordinary possibilities. It is worth mentioning at this point deaf children of deaf/hard of hearing parents, whose first natural language is sign language. They also use hearing aids and implants and are subjected to hearing and verbal speech rehabilitation interventions. Cochlear implantation for these children is a growing occurrence in the US and western European countries (Davidson, Lillo-Martin, Chen Pichler 2014). In this way, conditions are created in which these children can grow up surrounded by two languages, thus fostering sign-phonic bimodal bilingualism in children (Nussbaum et al, 2003; Ohna, 2004; Archbold and Wheeler, 2010; Kotowicz, 2017; Kobosko, 2018). Taking a prospective approach, it must be acknowledged that the challenge for the education of hearing-impaired children is to accept the diversity of this population and to responsibly incorporate the specific, individual needs and abilities of each child into pedagogical and social activities (Mudgett-DeCaro and Hurwitz, 1997).

Equal access to education, inclusive pressure on the education of hard of hearing/deaf children

The end of the 20th and the beginning of the 21st century is marked by the blooming idea of social integration and inclusive education all over the world. It has also shaped the process of education for children with hearing impairment. In Europe and worldwide, we can generally observe two attitudes towards the education of hearing-impaired pupils: in special and regular institutions. Education in special schools is seen in the category

of segregationism, whereas in regular schools it is perceived in accordance with the model of inclusive education, the teaching and upbringing of pupils with and without disabilities together. In the case of children with hearing impairments, this seemingly simple division has many variations and is implemented in different ways in Europe and around the world. The educational policies constituting the foundation of inclusive education derive from socially important international declarations, conventions, treaties, which aim to shape a society that is open and accessible to all, regardless of the limited abilities of individuals, a society without discrimination, respecting individual differences. While the right to education was first articulated in the 1948 UN Universal Declaration of Human Rights (Article 26. on the general right to education), the 1960 UNESCO Convention against Discrimination in Education unequivocally and firmly obliged countries to address the real, externalised and hidden barriers to education that lead to unequal treatment, of persons with disabilities as well (Article 1). Out of the 105 countries which are parties to the Convention, about a half ratified it. An important document for educational policy relating to the issue of the education and upbringing of children and youth with disabilities is also the 1989 UN Convention on the Rights of the Children (a document in force in all countries of the world except for the USA), where two articles are dedicated to the right to education and a separate article related to the education of children with disabilities. They oblige signatories to recognise the 'special needs of a disabled child' and to provide a free of charge assistance to 'ensure that the disabled child has effective access to and receives education (...) in a manner conducive to the child's achieving the fullest possible social integration and individual development'. (Article 23 of the Convention). The UNESCO Education for All programme, launched in 1990 at the World Conference in Jomtien, on the other hand, called for taking steps to '(...) provide equal access to education to every category of disabled persons as an integral part of the education system' (Article 3, §5).

An important milestone in the efforts for inclusive education became the provisions of the World Conference on Special Needs Education: Access and Quality, held in 1994 in Salamanca, Spain. It advocated for the formation of the school community as an inclusive social environment for all pupils. The final statement urged the countries to 'adopt as a matter of law or policy the principle of inclusive education' obliging regular schools to respect and accept individual differences of pupils and create conditions to provide effective support for their learning at school, taking into account the particular, individual, special needs.

In 2006, the right to inclusive education was established in the UN Convention on the Rights of Persons with Disabilities, which was ratified by 181 countries across the world. Article 24 of the Convention obliges the signatories to ensure an inclusive education system at all levels which enables ‘(...) The full development of human potential and sense of dignity and self-worth, and the strengthening of respect for human rights, fundamental freedoms and human diversity’. It also provides the conditions for ‘The development by persons with disabilities of their personality, talents and creativity, as well as their mental and physical abilities, to their fullest potential’. Also, the Committee on the Rights of Persons with Disabilities, which monitors the implementation of the Convention on the Rights of Persons with Disabilities, emphasises that States, signatories to the Convention, are obliged to ‘... take steps to recognise inclusive education as a right and grant all pupils with disabilities, regardless of their personal characteristics, the right to access inclusive learning opportunities in regular education, with access to support services as required’ (Committee on the Rights of Persons with Disabilities, 2019, p. 10).

The aforementioned global activities promoting the educational rights of persons with disabilities are complemented by initiatives and processes implemented at regional and state levels. Individual countries are taking appropriate steps aimed at transitioning international obligations into national legislation.

The analysis of the Global Education Monitoring Report (GEM 2020) concludes that, worldwide, 16 countries mention inclusive education in their general education legislation, while among the countries surveyed, 79% have separate legislations regarding the education of specific groups of people with disabilities, which are the responsibility of the Ministry of Education of these countries. In the field of education and upbringing, the principle of subsidiarity applies, which means that each state is responsible for its own education system. The legislations differ in the extent to which they address the right to education for all, including persons with disabilities.

Therefore, the common denominator for individual countries are the ratified treaties, declarations under which various solutions concerning the education of people with disabilities, including hearing impaired people, are applied and interpreted.

In the case of education of deaf/hard of hearing and hearing impaired children, we can therefore observe solutions in European Union member states such as: full inclusion of all students with hearing impairments in regular schools (Italy, Spain, Portugal, Iceland, Greece, Norway); the use of two

separate educational systems of so-called 'mainstream' and special education based on separate legislation (Belgium, the Netherlands, Bulgaria, Romania, Latvia); the combination of a variety of activities and services resulting from common legislation for all children, taking into account their special needs (Belgium, the Netherlands, Bulgaria, Romania, Latvia). mainstream and special education based on separate legislation (Belgium, the Netherlands, Bulgaria, Romania Latvia; combining in the educational space a variety of activities and services resulting from common legislation for all children including special educational needs of children with disabilities (including children with hearing impairment) in mainstream education and special education (Denmark, Germany, France, Ireland, Austria, Finland, the United Kingdom, Iceland and Liechtenstein and the Czech Republic, Lithuania, Poland, Slovakia, Hungary) (Global Education Monitoring Report Team, 2019; Przybysz, 2005).

Mainstreaming has a long history as a controversial topic in the education of deaf and hard of hearing students. This can also be observed nowadays in, for example, the very meaning of the term segregationist and inclusive education. In the Global Education Monitoring Report (GEM 2020), titled 'Inclusion and Education. All Means All', which presents the education policies and regulations of particular countries in the field of inclusive education, we find comments revealing tensions around the inclusive education of deaf/hard of hearing children. The World Federation of the deaf signalled comments made by four international organisations of the deaf community highlighting that 'special schools' are perceived in terms of segregation, while special schools for hard of hearing/deaf children do not mean education which 'excludes' or segregates. The best quality education is provided in an educational environment where every child can be fully included, for example by providing a full sign language environment, whether it is a special school or a fully accessible regular school, where the support of a sign language interpreter is provided. States-parties should provide options of different types of schooling to simplify the choice. Australia and Germany did not regard segregation in special schools for deaf children as negative in relation to parental choice. Similarly, in the US, Denmark, Finland, Norway, Sweden, with the sign language interpreter is not uncommon in regular schools in these countries.

The World Federation of the Deaf strongly emphasises that deaf people are citizens of the world, but consider themselves as a linguistic and cultural group with very complex natural languages, with a wide variety of national and regional sign languages which develop within the Deaf linguistic

community. In general, each country has its own national sign language; some countries have more than one sign language, e.g. in Finland both Finnish sign language and Finnish-Swedish sign language are used, in Switzerland Swiss German, Swiss-French and Swiss-Italian sign languages coexist. Therefore, language rights are important for deaf people and should not be considered solely within the disability paradigm. At this point, it is worth drawing attention to the provisions relevant to the situation of deaf, sign language users, which were introduced with the adoption of the UN Convention on the Rights of Persons with Disabilities (2006), where the issue of linguistic and cultural rights was incorporated into the human rights framework. Article 24 (Education) sec. 3: stipulates, inter alia, '(...) States, Parties shall take appropriate measures, including: (...) Facilitation of the learning of sign language and the promotion of the linguistic identity of the deaf community, (...) the education of persons, and in particular children, who are blind, deaf or deafblind, is delivered in the most appropriate languages and modes and means of communication for the individual, and in environments which maximise academic and social development'.

Do special schools for deaf pupils have a reason to exist or is their existence under jeopardy

Legislative actions observed worldwide, which highlight the value of inclusive education for children with disabilities and support it, as well as the progress in early diagnostics, rehabilitation using modern technologies (digital hearing aids, hearing implants) which provide access to the world of sounds including speech, have resulted in a change with relation to the educational environment for children with hearing impairment. There is a clear shift of focus in the education of these children from special schools to regular schools. The number of deaf and hearing impaired students receiving education in general education classes with hearing students has increased significantly (Eriks-Brophy and Whittingham, 2013; Luckner and Muir, 2002). In the course of the analysis, which was conducted in 49 European Union member states, it was shown that in 68% of the countries surveyed, more than 50% of hard of hearing/deaf and hearing impaired students, on average, attend regular schools (Institute for Statistics UNESCO 2018). Verhaert, Willems et al (2008) who surveyed 229 children in Belgium diagnosed with hearing impairment during a hearing screening showed that 85.4% were being educated in regular schools. Data from the UK shows that 78% of hard of hearing/deaf children of school age attend mainstream schools (CRIDE, 2015). In the USA and Canada, this number ranges from 80 to 90%

(Gallaudet Research Institute, 2004). Over the past 15 years, the number of students with hearing impairments in special schools has decreased by more than 50%. A consequence of this situation has been the closing of special schools. A recent study by the *Consortium for Research into Deaf Education* (CRIDE) and the *National Deaf Children's Society* (2022) found that the number of facilities for hard of hearing pupils in England has decreased by around 8%. A similar trend is observed in many countries.

Hearing-impaired children fitted with excellent hearing aids, hearing implants and those whom early rehabilitation intervention has enabled to achieve high results in the development of auditory function as well as verbal language can be successfully educated in regular schools. However, it is already known that this is not feasible in every case. It appears there are some hard of hearing/deaf children all over the world who have significantly limited verbal communication skills (caused by a number of factors), which severely hinders their learning in mainstream schools (Thoutenhoofd, 2006). They experience a number of educational and social failures, also resulting from inadequate learning conditions and a failure to meet their language communication needs (Holmström and Schönström, 2017). As early as 1994, in Salamanca, the UNESCO World Conference on Special Needs Education: Access and Quality, with the participation of representatives of ninety-two governments and twenty-five international organisations stated: 'Owing to the particular communication needs of deaf and deaf/blind persons, their education may be more suitably provided in special schools or special classes and units in mainstream schools' (Salamanca Declaration (sec. 21). This position is reflected in the UN Standard Rules on the Equalisation of Opportunities for Persons with Disabilities. The general commentary to the UN Convention on the Rights of Persons with Disabilities No. 6 (2018) on equality and non-discrimination in section 65 states: 'To ensure equality and non-discrimination for deaf children in educational settings, they must be provided with sign language learning environments with deaf peers and deaf adult role models.'

In the context of the aforementioned statements, it is worth highlighting the issue of the determinants of identity formation and its significance for the self-esteem and psychological well-being, sense of self-esteem of deaf children, whose education and upbringing takes place only in the environment of their hearing peers. Researchers addressing this issue (Chapman and Dammeyer, 2017) point out that the majority of children, even with profound hearing loss, with whom hearing and speech rehabilitation has started early, with maximum use of the auditory pathway through the

provision of hearing implants, develops their speech very well and it is well received and socially understood in the setting of a mainstream school. It may lead to a situation in which a deaf young person with a hearing implant is perceived as a hearing person. Being seen in this way, while at the same time perceiving themselves as deaf, might create a certain amount of tension, especially for those who feel that they are deaf, but also consider hearing to be important and desirable in their lives. They are then often in a situation where they come to the conclusion that they belong neither to the 'deaf world' nor to the 'hearing world.'

In addition, pupils in regular schools are often perceived as being able to hear well due to their hearing aids or implants, and therefore little attention is paid to their needs resulting from difficult listening conditions (noise, echo, speech rate of others), which make it impossible to understand what the teacher, as well as other pupils, are communicating. The fact that occasional learning opportunities are very limited (despite the use of a hearing aid or implant) cannot be ignored. Hearing children learn language naturally, without a moment's pause, by hearing the conversations around them. The vast majority of these conversations are not directed at them, and yet they do benefit from them, thereby acquiring knowledge about the surrounding reality. The situation is not the same for children with hearing impairments. Even if they recognise oral speech very well in one-on-one interactions, they hear and understand the speech of others differently when they are in a group or when the communication is not directly addressed to them and takes place in uncomfortable acoustic conditions. How much are they missing out on from what reaches a well-hearing child, 20%, 30%, perhaps more. Even the most perfect hearing aids or implants do not provide full immersion in a phonetic language. The claim that if you can hear, you can understand is not true. Hearing aids, implants potentially offer a good chance for the speech development of a child with a hearing impairment. However, success in the development of speech, language communication is very individual and depends on many factors, which sometimes are difficult to determine.

High diversity among the population of hearing impaired children observed today calls for understanding and greater flexibility in meeting their special educational needs. Conditions of inclusive education are not optimal or most beneficial for all hard of hearing/deaf children. Many problems have been identified with both educational and social inclusion due to communication difficulties experienced by deaf children. It is even suggested that at times deaf children may be excluded from educational and social

opportunities if education is provided in a mainstream institution (Jarvis, 2002). Despite the use of modern technology in rehabilitation and education, a large percentage of deaf students require sign language support. As mentioned earlier, sign language in education is treated differently in various countries around the world. One can observe approaches in which:

- Sign language is virtually absent from the curricula of special schools for deaf children, as well as regular schools. The approach stressing the importance of verbal language in the education of all children with hearing impairments is strongly emphasised. Sign language is allowed, but treated as a kind of therapeutic option: Belgium, Hungary
- Sign language is used in the education of hard of hearing/deaf students only in special schools: Poland, Bulgaria, Germany, Greece, Ireland, Portugal
- Sign language is used in special institutions for hearing-impaired children, as well as in special divisions or units of regular schools: Finland
- Sign language is available in regular education with the support of interpreters as well as in special education for hearing-impaired children and youth as a full-fledged with the phonic native language as a tool for linguistic communication in the course of schooling: Netherlands, United States, Sweden, Croatia, Macedonia, Norway (Leeson, 2006; Wheatley and Pabsch, 2010).

The presence of sign language in regular schools is made possible by the participation of a sign language interpreter in the educational process, who should be more than just a middleman between the teacher, the peers and the deaf student. An interpreter is effective when he or she is able to explain details and, by doing so, provide deaf students with the transmission of information, presumably the same as that addressed to hearing students in class. However, research shows that despite the presence of an interpreter, deaf students are not able to fully engage in classroom discussions, asking questions, and providing answers. It turns out that teachers in inclusive classrooms rarely, or never, pose questions to deaf students. Deaf children are often unable to be active in discussions because not all questions and answers from other students are translated, and they are not able to follow all translations. Communication between the teacher and the deaf pupil tends to be one-directional and of a low standard, as does the communication with hearing peers, which clearly indicates a genuine low level of integration/inclusion. It appears that integration mediated by an interpreter leaves out

any challenges and opportunities related to the specific abilities and learning potential of deaf children, leaving them constrained by the limited forms of participation in education and social relationships with their peers (Grimes and Cameron (2005).

In spite of the strong pressure for inclusive education for children with a range of disabilities, there is a continuous debate on how different education systems around the world address the problem of educating children with hearing impairments, including their special needs in terms of communication, language acquisition and social-emotional development, within which they could reach their full potential. Neither extreme is reasonable, as –particularly for children with hearing impairments – there is no single approach which is best for everyone. It is therefore desirable to start from the premise that the education of children considered to have special needs should be viewed as a part of a larger process of school development, which can have different dimensions. While the achievements in early diagnosis and intervention in the form of providing children with cochlear implants, hearing rehabilitation mean that there are now many more deaf children who communicate through speech, it has also become clear that for the foreseeable future there will always be children in need of a bilingual approach incorporating sign language to reach their full potential. More than 90% of children with hearing impairment are born into hearing families. Despite early diagnosis and intervention, the hearing defect limits their full access to language in early childhood, as hearing parents need time to learn to communicate with their child. Such language deprivation can have lasting effects even in the school years, affecting not only learning outcomes, but also critical identity development, peer relationships and mental health. In addition, it was pointed out that for many young people with hearing implants there are certain contexts in which the ability to use sign language becomes an added value, especially in the middle stage of education. They are also more flexible in their approach to communication and talk about the communication needs of the situation rather than specific language practices. They do not have the dilemma of choosing either/or between spoken and sign language approach. A better understanding of the nuances and variability of language use seems to be indispensable in planning the educational journey of an individual child with a hearing impairment (Wheeler et al., 2007; Wheeler et al., 2009). Teachers need to think prospectively about the child with a hearing impairment as a whole, consider the language needs and the trajectory of development of deaf children, so that, depending on their individual needs and abilities, they are able to find the best educational setting. For many of

these children, special schools are the necessary educational environment to help make their developmental and educational opportunities more equal. In the bimodal and bilingual approach to the education of hearing impaired children and youth, advocated by the majority of special schools, the need to adapt to the changing focus of the individualised approach to the education of hearing impaired, hard of hearing/deaf children is apparent. The main goal becomes to maximise educational opportunities for children and youth with hearing impairments and to ensure that sign language remains an essential part of education and a source for meeting the diverse communication and social needs in the different environments of life of children (Lillo-Martin et al., 2014). A special school can provide good conditions for achieving this objective – a school in which a continuum of developing linguistic communication in both spoken and sign language becomes possible in one place. Within the same space, deaf children would then have the opportunity to develop two languages, which are seen as the norm and part of life. This would also alleviate the tensions experienced by parents trying to choose between spoken and sign language (Swanwick, Hendar et al., 2014).

In mainstream education institutions, the conditions and specificities of the development of hearing-impaired children are rarely understood and accounted for comprehensively. Teachers tend to make the faulty assumption that hard of hearing/deaf pupils are the same as hearing pupils, except that they simply cannot hear. They assume that if they remove communication barriers, (i.e. providing a sign language interpreter for the pupil in school) they can teach their deaf children just like other hearing children. A Rochester Institute of Technology study of deaf students aged 5 to 18 conducted in Australia, the Netherlands, England, Scotland and Rochester, in the state of New York, contradicts this belief. In fact, as it turned out, one could claim that there are some differences between deaf and hearing students in the way their memory works, the way they organise their knowledge, and the learning strategies they use. The analyses carried out point out that deaf pupils do not always learn and think in the same way as hearing children, but also their stock of knowledge about the world, the way it is acquired and communicated to others is different from that of their hearing peers. For example, the visual-spatial memories of deaf people are formed on a higher level than those of their hearing peers. Sequential memory, on the other hand, is not as good. Therefore, the perceived learning difficulties in these children should not be linked, as it often is the case, mainly to their lower language competence. Failure to adapt teaching strategies to the specific characteristics and developmental needs of these children can accumulate difficulties, which

ultimately show that these pupils are at a lower level in terms of learning outcomes. Special education teachers have a specialised background and understand the nature of not only the individual but personalised approach to the learning process in a small class, but also the need to modify the existing mainstream curriculum in the school so that its implementation becomes accessible to hard of hearing/deaf pupils. There is a need for knowledge of the specific development of children with hearing impairment and greater flexibility to respond to the needs of each student in different types of special, inclusive, regular schools (Marschark and Spencer, 2011).

It should also not be ignored that schools for deaf children are not only an educational option, but are the only beneficial place for many of them, certainly not for all of them, but for many indeed. This is because special schools are the least restrictive environment for a deaf child, an environment rich in fully accessible, visual-spatial language without any restrictions. In the era of pressure for inclusive education, it is worth to realise the fact that for many of these children, this specialised educational environment can be more beneficial than standard education in regular schools. Special schools for deaf pupils are able to provide the necessary visual learning space and a supportive environment for language development. No other educational environment can offer such spontaneity and freedom of communication as that found in schools for the deaf. It provides the opportunity for social relationships, friendships without barriers, without feeling misunderstood or unaccepted. The child is not overlooked or ignored in a deaf school, does not have to explain why he or she is deaf, does not have to worry about being laughed at by peers for speaking differently. Schools for the deaf provide a real community for many deaf children. Pupils in these schools develop emotional, social and cognitive skills that are key to the fulfilment of human potential and identity.

Conclusion

I will conclude by returning to the question posed in the title about the future of schools for the deaf and whether their existence is in jeopardy. The rapid development of technology and the strong medicalisation of problems related to hearing loss have coincided with the global idea of integration and the aspirations of societies for inclusion in the area of education for children with hearing impairment. This has unfortunately set in motion a trend towards the closure of special schools. We are currently witnessing the above, but it will not be, in my opinion, a progressive process. However, deaf education pedagogues have to shake off the pressure of medicalisation

and appreciate the importance of early intervention in the broadest sense, of rehabilitating the young deaf child in their family environment. Indeed, clinical research on deaf children with hearing implants has been intellectually dominated by exposing the effectiveness of cochlear implantation as a treatment for profound hearing loss and the results relating to testing of hearing and speech. Expected are the presentations of analyses of factors so far mostly overlooked, namely psychological and neurocognitive factors, which may be responsible for enormous individual differences and variability in the effectiveness of cochlear implants. The hearing impaired child cannot be treated narrowly, only from the perspective of effective auditory training and speech rehabilitation, or, on the other hand, only from the perspective of sign language. One cannot limit oneself to the view that if you hear then you will understand and all problems will disappear. On the other hand, sign language cannot be seen as a remedy for all errors and delays. Access to sign language and its development are not in contradiction with the possibilities offered by new technologies, which greatly facilitate speech learning, but do not by themselves restore the ability to speak. Children who are assisted by the latest devices enabling auditory perception of the world of sounds do not cease to be deaf. In the process of their development, they need diverse rehabilitative, pedagogical, psychological and social support. A good place to meet the developmental needs of many deaf children is precisely the special school. However, it must, in my opinion, liberate itself from the stigma of a special school for children, pupils with educational failures, and become an open school for children with hearing impairments. It must become a bilingual and bicultural educational environment. It needs to step out into the open by proposing new models of education which do not distinguish between an inclusive and a segregated model, where spoken language and sign language approaches are treated as mutually exclusive. There is a need for a pluralistic view of early acquisition of both spoken and sign language, a gradual parallel development of language and communication skills ensuring that children with impaired hearing can learn without limitations. A pragmatic and responsive approach to the language communication needs of the child will provide for a more heterogeneous view of the teaching-learning process in hard of hearing and deaf children and the place in which it would happen.

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