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Dear Author and dear Reader,



Welcome to the Armenian Journal of Special Education (AJSE). The aim of the AJSE is to give a highly readable and valuable addition to literature related to the field of the special education, inclusion, and rehabilitation. It is our pleasure and goal to enlighten international authors, readers, and reviewers to become highly qualified and skilled writers, critics, and users of special and inclusive education research on international level, as well as advanced researching practices. The journal is a peer reviewed journal in English for the enhancement of research in different areas of special, inclusive education and rehabilitation.

Editing an academic journal is a vigorous and rewarding mission, but also time-consuming and often frustrating. Taking into consideration this we highly appreciate any remarks, feedback and proposals that would help us to improve the objectives and the structure of the Journal. We are trying to keep the track to interwove universally and contribute to global knowledge as much as it is possible.

Editorial board of the journal is delighted to publish AJSE in English to echo diverse issues of international and national special, inclusive education and rehabilitation fields that are relevant for up-to-date dispute. We are looking forward and very pleased to receive contributions for our next issue from special educators, rehabilitation ground specialists, researchers, scholars and practitioners to ensure the reliability and the accomplishment of the Journal.

Sincerely,

MARIANNA HARUTYUNYAN

CONTENT

N	AUTHOR(S) AND TITLE	PAGE
1	<i>Emilya Tadevosyan, Ani Harutyunyan, Zaruhi Harutyunyan</i> THE FEATURES AND CHALLENGES OF TWICE EXCEPTIONALITY PHENOMENON IN THE CONTEMPORARY EDUCATION SYSTEM	6
2	<i>Gomathi Jatin</i> AM I CREATING A SAFE SPACE?	19
3	<i>Hasmik Arakelyan</i> INCLUSIVE EDUCATION SYSTEM IN ARMENIA AND PERSPECTIVES FOR ITS DEVELOPMENT	33
4	<i>Gohar Hovyan, Elen Harutyunyan, Zhenya Papoyan, Laura Kosyan, Ani Margaryan</i> IMPLEMENTATION OF SPEECH THERAPY SERVICES AND ASSESSMENT OF SPEECH DISORDERS IN REGIONAL PEDAGOGICAL-PSYCHOLOGICAL SUPPORT CENTERS	42
5	<i>Inessa Harutyunyan</i> ADAPTATION ISSUES OF CHILDREN WITH COCHLEAR IMPLANTS WITHIN THE FRAMEWORK OF GENERAL INCLUSIVE EDUCATION IN ARMENIA	54
6	<i>Lilit Vardanyan</i> SCHOOL BULLYING AS A CONTRIBUTOR TO STUDENTS' MENTAL HEALTH ISSUES	68
7	<i>Mery Shaboyan</i> VOCAL DISTURBANCES ENCOUNTERED AMONG VOICE-RELATED PROFESSIONALS	78
8	<i>Tatevik Ghazaryan, Laura Iskandaryan, Babikian V. Armineh, Kovic, Mark</i> EXPERIENCES OF OCCUPATIONAL THERAPISTS IN IMPLEMENTING THE WHO ICF MODEL FOR DISABILITY DETERMINATION IN ARMENIA	90
9	<i>Taline Kalfayan Ashekian</i> SPEECH-LANGUAGE PATHOLOGY PRACTICE ADVANCEMENT: THE INFLUENCE OF RESEARCH AND EVIDENCE-BASED PRACTICE ON STAYING CURRENT	110
10	<i>Vahan Sargsyan, Tamara Sargsyan, Sona Nersisyan, Nune Gevorgyan</i> EVALUATING THE IMPACT OF CHESS LEARNING ON CHILDREN WITH AUTISM SPECTRUM DISORDERS	122

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THE FEATURES AND CHALLENGES OF TWICE EXCEPTIONALITY PHENOMENON IN THE CONTEMPORARY EDUCATION SYSTEM

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ABSTRACT

The article aimed to study and highlight the main educational needs of gifted and "twice exceptional" learners in inclusive educational settings. The article used qualitative and quantitative methodology to study the specifics of the "twice exceptionality" problem, the nature of its manifestation, and the difficulties that arise in the educational process.

Data-based analysis and semi-structured interviews were conducted with five specialists working in the "Shirakatsy Lyceum" International Scientific and Educational Complex. The demographic data of 1,200 learners was studied to highlight the primary educational needs that can emerge as a result of twice-exceptionality and to analyse the needed methodological approaches and required environmental adaptations for facilitating the educational process. The study's data analysis combined descriptive and quantitative data analysis methods.

Current research **results** have shown that learners who considered being twice exceptional and having correctly identified as gifted hyperactive experienced diverse challenges in the classroom and at school since special instructional strategies to help them reach their potential were still missing. At the same time, schools and families of twice-exceptional learners have to develop and be ready to address

the needs of such learners more effectively and in a structured way.

Keywords: *"twice exceptional" phenomenon, giftedness, learners with special educational needs.*

INTRODUCTION

The topic of "twice exceptional," meaning gifted while having a disability, has received increased attention in recent years (Assouline, Foley Nicpon, & Whiteman, 2010; Trail, 2011). With the 2004 reauthorization of the Individuals with Disabilities Education Act (IDEA 2004), children with disabilities who are gifted and talented were recognized as a unique population in need of additional support. The Republic of Armenia declares universal, inclusive education to guarantee every child's right to education. Inclusive education policy is aimed at enabling every child's access to education, equal participation opportunity, and quality assurance (Law of the RA "On Amendments and Supplements to the Law of the Republic of Armenia "On General Education," 2014).

During the last two decades, the efforts of representatives of the education sector have been mainly directed at the issues of effectively organizing the education of children with psychophysical developmental problems within the scope of inclusive education. However, in recent years, effective organization of gifted children's education has become actual as well.

Due to various definitions of giftedness and learning disabilities, problems in identifying twice-exceptional students arise. Generally, twice-exceptional students meet the eligibility criteria for giftedness and learning disabilities (Beckley, 2017). Gifted children are commonly described as having exceptional abilities or potential for learning and problem-solving. A twice-exceptional schoolchild is one who experiences special educational programming to accommodate one or more handicapping conditions while also promoting the learner's potential for exceptional achievement in one or more areas in which they may be gifted (Wang & Neihart, 2015).

Twice, exceptionality often does not show up until children are in school. In their early years, these children often seem very bright, with varied interests and advanced vocabularies (particularly concerning same-age peers), and many times, parents are unaware that they have a child with twice-exceptionality. Teachers sometimes spot problems in school; sometimes, parents are the first to notice their children's frustrations with school. During the early years, social difficulties may occur. The Twice exceptionality child may find it hard to make friends and communicate with them. Academic problems also often appear later (Dare & Nowicki, 2015).

In order to effectively organize the learning process of learners with twice-exceptionality, first of all, it is necessary to make changes in the curriculum content, knowledge delivery, and testing approaches, as well as in the educational environment. In this regard, the research aimed to study and

illuminate the problem of giftedness and the phenomenon of "twice exceptionality" in organizing inclusive education.

LITERATURE REVIEW

A learner "is considered twice exceptional when he or she is identified as gifted/talented in one or more areas while also possessing a learning, emotional, physical, sensory, and/or developmental disability" (Assouline, Foley Nicpon, & Whiteman, 2010).

The concept twice exceptional refers to gifted learners who have some form of learning or developmental disability (Beckley, 2017). These learners are considered exceptional both because of their giftedness (e.g., intellectual, creative, perceptual, motor, etc.) and because they are disabled (e.g., specific learning disability, neurodevelopmental disability, etc.) or neuro-divergent. Children identified as twice exceptional can exhibit a wide range of traits, many typical of gifted children. Like gifted children, twice-exceptional children often show greater asynchrony than average children (that is, a larger gap between their mental and physical age). They are often intense and susceptible to their emotional and physical environments (Ronksley-Pavia, 2015).

Nowadays, giftedness is seen as an innate potential of a person rather than an ability acquired through training and learning. It can develop and lead to the creation of something new in science or art, but it can also fail and remain "infertile." In the scientific literature, the following groups of gifted children are distinguished: intellectual, creative, partial (musical, mathematical, etc.), and academic (endowed with high learning abilities) (Pylaeva, 2015).

According to the extensiveness of manifestation, giftedness is general and private, according to the features of age development - early and late manifested, according to the degree of formation - actual and potential, and according to the form of manifestation - hidden and obvious (Assouline, & Whiteman, 2011). Most often, people with high intellectual abilities (IQ ³ 130) and exceptional creative abilities are considered gifted (Araqelyan, 2017).

Twice exceptionality requires unique identification methods and targeted educational supports highlighting a child's strengths. The intellectual potential of twice-exceptional youth is great. At the same time, they have an enduring disability or disorder that inhibits their learning experience (Assouline & Whiteman, 2011).

It should be noted that people with extraordinary abilities cannot always be considered absolutely healthy, both from a somatic and psychological point of view. According to Missett et al. (2016), research based on teachers' experience, left-handedness, speech disorders, and autoimmune diseases are common among gifted children. Giftedness is often combined with attention deficit hyperactivity

disorder, learning difficulties (mainly dyslexia), autism (especially Asperger's syndrome), and bipolar disorder (Lee et al., 2006).

Research results have shown that among children considered gifted, up to 20% have learning difficulties. In cases when giftedness is combined with learning difficulties, attention, or other cognitive functions, behavioural disorders are called "twice gifted" or "twice exceptional" (Atmaca & Baloglu, 2022). These children need pedagogical methods, approaches, and adaptations more than gifted children and children with learning difficulties and attention and behaviour disorders in their learning process. Their support should be aimed at developing strengths (talent) and, at the same time, overcoming weaknesses (Lovett & Lewandowski, 2006).

"Twice exceptional" learners can demonstrate the potential for high achievement or creative productivity in one or more domains such as math, science, technology, and the social arts, and at the same time, they manifest one or more disabilities as defined by federal or state eligibility criteria (Reis, Baum, & Burke, 2014). They are considered twice-exceptional when identified as gifted or talented in one or more areas while having a learning, emotional, physical, sensory, or developmental disability (Ronksley-Pavia, 2015). This includes students with various cognitive disorders and learning difficulties, sensorimotor disorders, autism or Asperger's syndrome, ADHD, or social disturbance (Coleman, Harradine, & Williams, 2005). Therefore, special individual training programs can benefit this group of children, in which the development of strengths will be emphasized, and, at the same time, the necessary attention will be paid to overcoming their weaknesses (Pylaeva, 2015).

Teachers often think that gifted children are always successful in the educational process, but not all gifted people in history have been successful in school. For example, children with learning difficulties and gifted children are often far ahead of their peers in terms of mathematical knowledge. However, they are less able to read and meet the demands made by the school for learners of a given age. Their creative approach to problem-solving outside of school is often astonishing, but at school, they feel depressed and unfulfilled. Many problems are often hidden behind extraordinary abilities, which can be divided into two groups: internal (personal characteristics, somatic and mental health problems) and external (family atmosphere, school environment, opportunities to study subjects of interest in more depth, and lack of psychological support from others, etc.) (Polojay, 2013).

Many teachers have difficulty comprehending that a learner can be gifted and also have learning disabilities, which complicates their participation in educational and classroom activities. As a result, children with special educational needs that result from both their high abilities and their learning problems are rarely identified and are often poorly served. Twice-exceptionality is gaining increasing recognition in the gifted education literature, but little is understood about the knowledge and awareness

of this concept within the educational and psychological community or about professionals' experience working with this population of learners. This study explores the scope of expression of "twice exceptional" phenomenon and the challenges that arise in the process of organizing inclusive education. Included recommendations would help ensure that gifted learners with learning disabilities receive the intervention needed to help them achieve their full potential.

METHODOLOGY

Current research methodology is based on the combination of qualitative and quantitative methods for investigating and exploring the specifics of the "twice exceptionality" problem and, the nature of its manifestation, the difficulties that arise in the educational process (Creswell & Creswell, 2017). For the statistical analysis, the digital data of 1200 learners was examined to investigate the nature, age, and gender composition of learners with special educational needs studying in "Shirakatsy Lyceum" International Scientific and Educational Complex from 2017 – 2022.

Semi-structured interviews with psychologists of "Shirakatsy Lyceum" International Scientific and Educational Complex were done, which were well-informed about the educational landscape and provided services for learners with special educational needs and considered "twice-exceptional". Data collection was based on understanding the nuanced cognitive and psychosocial patterns within this population and exploring the existing opportunities and challenges that experienced learners with characteristics of giftedness problem could be considered having "twice exceptionality" in an inclusive educational system.

Since giftedness is defined as an "asynchronous development in which advanced cognitive abilities and heightened intensity combine to create inner experiences and awareness that are qualitatively different from the norm (Ruban & Reis, 2005), the descriptive data analysis method was applied to study the main educational needs and environmental conditions that gifted and "twice exceptional" learners experienced in inclusive educational process in "Shirakatsy Lyceum" International Scientific and Educational Complex.

DATA COLLECTION

Two data collection forms were used: a demographic questionnaire and a semi-structured interview with a school psychologist (Patton, 2002). The demographic questionnaire included information about family background (e.g., parent education level, siblings, community makeup) and educational information (e.g., extracurricular activities, college and career goals, and grade point average). A general interview guide for the semi-structured interview was created based on the

researchers' experiences in education and literature review.

Based on an empirical literature review of the domains of twice-exceptionality (e.g., attention deficit hyperactivity disorder, autism spectrum disorder, and specific learning disability), educational plans and accommodations of learning environment have been studied that can help to provide recommendations for how school psychologists can interpret formative and summative assessments taken by twice-exceptional learners and subsequently help design educational plans that will meet their unique needs.

DATA ANALYSIS

Data analysis was based on the descriptive and quantitative analysis method for exploring the educational experience of twice-exceptional learners (Marczyk, DeMatteo & Festinger, 2010). The descriptive data analysis method was used in the form of quantitative research to interpret, summarize, and draw meaningful insights from numeric data (Trochim, 2006). The data gained from the semi-structured interviews was elaborated, and open-ended questions were coded to investigate the educational characteristics of learners, teachers' awareness of, attitudes about, and experience with twice-exceptional learners, and the effects of school environments on the learning process. As a result of data analysis, the characteristics of the educational experience of "twice exceptional" learners in a general educational setting were investigated and described in accordance with the school environment, and support was given.

RESULT/ DISCUSSION

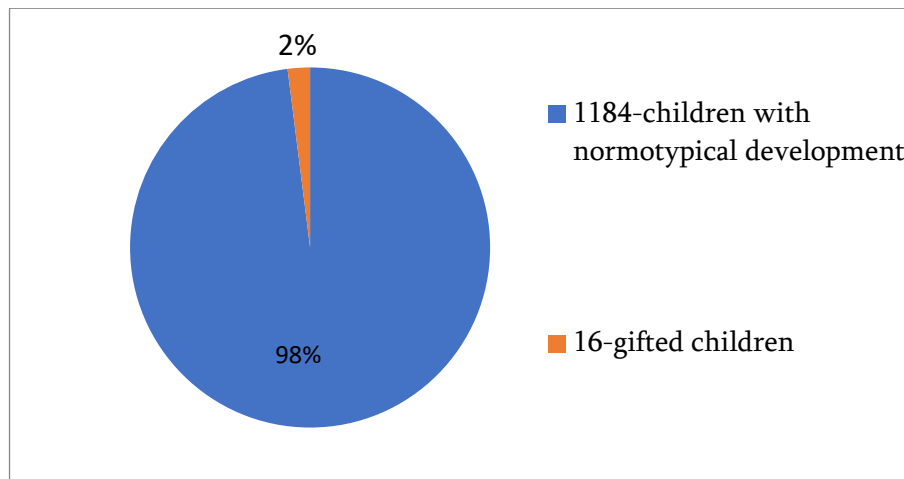
This study aimed to identify the primary educational needs and environmental conditions that gifted and "twice exceptional" learners experienced in the inclusive educational process in "Shirakatsy Lyceum". Very often, learners who have been identified twice as exceptional can experience many difficulties in their learning environment as their characteristics can be complicated. Reis, Baum, and Burke (2014) define twice-exceptional learners as those with simultaneous characteristics of a gifted learner and a learner with a disability.

Research data analysis has shown that in the educational setting, teachers may also experience difficulties meeting the needs of twice-exceptional learners while simultaneously addressing their remarkable strengths. Several studies suggest that when faced with identifying "twice exceptional" learners, educators were more likely to recognize learners' disabilities despite the learner demonstrating exceptional talent (Foley-Nicpon et al., 2013; Ferguson, 2015), which could likely be due to their perceptions about giftedness and disability.

The statistical data analysis of 1200 learners who have special educational needs and study in "Shirakatsy Lyceum" International Scientific and Educational Complex from the period of 2017 – 2022 have shown that giftedness results were registered among 16 learners (2%) (Figure 1).

Figure 1.

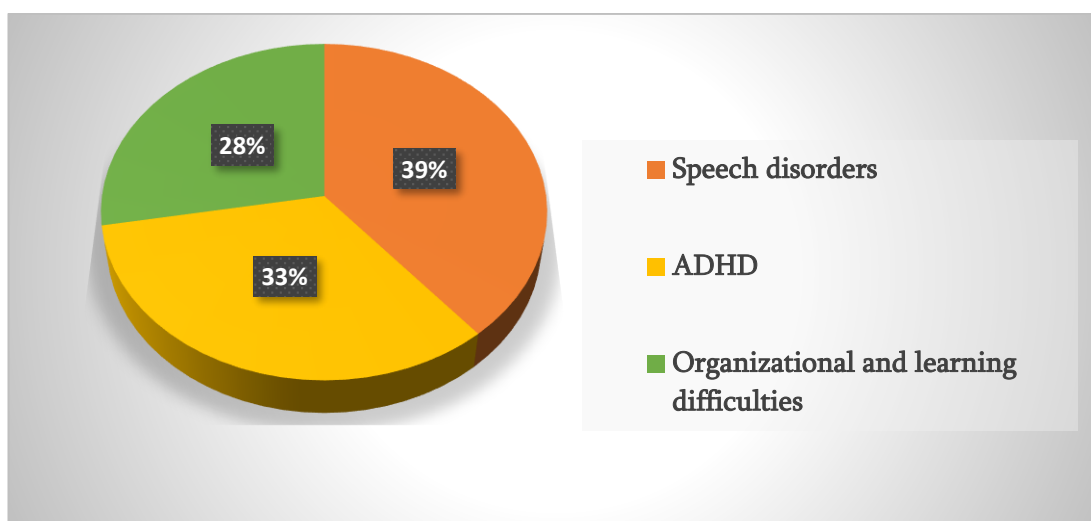
Number of gifted learners studying in "Shirakatsy Lyceum" International Scientific and Educational Complex from the period of 2017-2022.



Within the scope of the research, the special educational needs of twice-exceptional learners were investigated and outlined, which is considered to be the main obstacle in the organization of their educational process. Recognition of their exceptionality and daily lived experiences of impairment and giftedness can be helpful for better establishing daily and school-based activities. The main difficulties that were possible to outline have been presented as follows (Figure 2):

Figure 2.

Difficulties and disorders of twice-exceptional learners studying in "Shirakatsy Lyceum" International Scientific and Educational Complex from the period of 2017-2022.



Current research participants have defined that some gifted learners were able to learn educational materials faster, work with abstract concepts more easily, and simply find connections between subjects. Therefore, in some cases, they needed to work at a higher learning level, at a faster pace, and with a greater variety of materials. Data analysis has shown that the following methodological approaches are considered to be effective while working with gifted learners in educational settings:

- Speeding up the pace of studying the material provides a higher learning level.
- Reduction of the time required for mastering the material.
- Condensed assimilation of the curriculum.
- Ability to conduct independent studies.

Summarizing research data from conducted interviews, it became possible to group the most frequently encountered difficulties of learners with twice exceptionalities in a current educational environment. Specialists and teachers working with twice-exceptional learners (who have special educational needs) have described the main difficulties and problems that usually arise in the educational process, and they tend to struggle with them in the school environment. Those were listed in the following order of priority:

1. Difficulties in social interactions with peers
2. Inconsistent performance
3. Disorganization during classroom activities
4. Executive dysfunction
5. Lack of initiative in school and out-of-school activities
6. Frequent fatigue/tiredness

At the same time, the other major problem outlined as a result of data analysis was defining and distinguishing twice-exceptionality and giftedness among learners with special educational needs.

Inadequately defining or failing to define twice-exceptionality makes it problematic to acknowledge and consider their educational needs related to their distinctiveness. Recognition of their exceptionality and daily lived experiences of impairment and giftedness can lead to a better understanding by educators, parents/carers, and the children themselves (National Association for Gifted Children, 2013). However, twice-exceptional learners must be treated and educated differently than other gifted children or learners with special educational needs. Both giftedness and other disorders could be considered as learning barriers, and in turn, such erroneous perception may lead to failures in the learner's educational experience (Pfeiffer, 2013).

Research data analysis has shown that learners who considered being twice exceptional and having correctly identified gifted hyperactivity experienced diverse challenges in the classroom, and a lack of instructional strategies existed to help them reach their potential. At the same time, schools and families of twice-exceptional learners have to develop and be ready to address the needs of such learners effectively. Many researchers found out that gifted hyperactive children were in the category of learners who require a unique "dual-emphasis approach that focuses on strength and talents while supporting and addressing the disability," so it is necessary to address both areas using different educational and instructional strategies in order to provide appropriate educational service to gifted hyperactive children (Baldwin et al., 2015).

Adapting the educational environment—the social, learning, and physical environment—to twice-exceptional learners' needs is the other important aspect of facilitating their school educational process.

Including twice-exceptional learners in general classrooms requires more collaborative work by teachers to achieve the same educational goals, such as supporting one another, developing appropriate instructional plans, and differentiating instruction for learners with unique needs (Kennedy et al., 2002). Developing this idea, Reis et al. (2014) discussed that an individual educational plan for twice-exceptional learners or "an accommodation plan with goals and strategies" can be the solution to inclusive education for gifted, hyperactive children.

Speaking about the social environment, it is worth noting that, like all learners, those with twice exceptionalities also need a safe environment where they will be willing to demonstrate their abilities. It is also important that the environment provides intellectual challenges that they must overcome, ask questions, get full answers, sometimes take risks, and have the opportunity to make mistakes. The social environment should also allow these children to have fun and feel relaxed. It is also important that children follow the rules. Children should be praised for good work and treated as individuals with both strengths and weaknesses. Regular discussions with teachers, other adults, and other gifted learners

should be organized for learners with twice exceptionalities.

Adaptations of the learning environment: When choosing methods and techniques for working with gifted learners, it was advisable to consider the following principles:

A complication of the material: It was necessary to give tasks that will challenge them and constantly have additional complex tasks in cases where they finish the work earlier than others; otherwise, finishing early, they will begin to get bored and look for other ways to kill time. At the same time, it was necessary to increase not the number of tasks but the level of complexity.

Incorporating tasks that develop divergent thinking which have several possible solutions. They allow you to express your own opinion. Most significant was to accept the opinion of a gifted child and, at the same time, show him that other opinions exist.

Enrichment of the educational material: It is necessary to provide gifted learners with the opportunity to obtain additional materials on the main topic to make comparisons and generalizations.

At the same time, a number of research studies revealed that not only collaboration and developing unique educational plans would have a successful result in serving twice exceptional learners, but just everyday classroom techniques and methods could also have a positive influence on their academic and non-academic development (Abramo, 2015; Lee & Olenchak, 2015).

For this aim, research specified that many kinds of techniques used in the classroom can be beneficial for twice-exceptional learners, such as *deepening the material, assigning interesting, complex tasks and puzzles on the topic, excluding mechanical work, and revealing logical connections in each work, providing tasks that develop creativity.*

It was useful and needed to allow twice exceptional learners to independently choose the tasks of the lesson and the way of their implementation, according to their interests.

Satisfy the curiosity of gifted learners and respond to the questions they raise. The question should be answered during the break if it is outside the lesson's topic. If the teacher finds it difficult to answer the question accurately, it can be suggested that they search and find the answer together.

It is necessary to provide feedback to the learner regularly and to ensure that the gifted learner does not focus on details, leaving aside the main task and losing track of time.

Research by Abramo (2015) highlighted that twice exceptional gifted hyperactive learners are usually very good at problem-solving and are able to "generate creative solutions and make connections between ideas that are seemingly unrelated" (p.63). That is why challenging and motivating twice-exceptional learners in the classroom can also be a good strategy for making their education enjoyable and meaningful to them. Therefore, they can spend much time and energy completing challenging but creative activities. Speaking about the physical environment adaptations, it is important to note that the

physical environment should be comfortable, provide variety, and, at the same time, not distract learners from their actual work (Ilyin, 2009).

CONCLUSION

In conclusion, it was necessary to note that creating the necessary conditions for the manifestation of talent in gifted children was an important social and educational issue since it was these children who, growing up, became the "engines" of scientific and technological progress in the future, leaving behind a tremendous scientific and creative legacy, which made humanity gets the opportunity to transition to a higher level of life. Most often, learners identified as gifted did not have the possibility to make their talents recognized or developed while studying at school since most of them did not receive appropriate and necessary services.

It was obvious that the "twice-exceptionality" phenomenon was not well studied in Armenia, and it was evident that considerable advocacy and support were needed to help twice-exceptional learners develop the skills and attitudes necessary to navigate negative experiences. Schools and families of twice-exceptional learners also needed support and direct services to address their children's needs effectively since this was one of the main tasks of inclusive education, the primary purpose of which was to provide a suitable education for all, regardless of background.

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AM I CREATING A SAFE SPACE?

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ABSTRACT

The concept of “safe space” dates back to the 1970s when it was used to describe the physical space where individuals could share their experiences in a safe environment (Flensner & Von der Lippe, 2019). Though a fundamental requirement of a safe space is physical safety, we should recognize that a learning space that is free from violence, discrimination, harassment, and fear; encourages participation and honest sharing of ideas; is non-judgmental, characterized by respect, and allows risk-taking, promotes healthy, positive and flourishing educational experiences. Academic safe space aims to create an inclusive and effective learning environment in a complex learning environment (Magdola, 2000, p. 94 as cited in Gayle, Cortez & Preiss, 2013). The Sustainable Development Goals (SDGs), also known as the Global Goals, adopted by the United Nations in 2015 as a universal call to ensure peace and prosperity for all by 2030, aims to address various social, economic, and environmental challenges through the essential tenets of diversity and inclusion. In this context, the author in this paper brings to the forefront a very nagging and persistent question for educators asking them to reflect on the question “Am I creating a Safe space?” and recommends strategies for creating that “safe space” for learners.

Keywords: *safe space, classrooms, educators, inclusive, sustainable development goals (SDGS), educational experience.*

INTRODUCTION TO “CLASSROOM AS SAFE SPACE”

Rabindranath Tagore writes in his poem “Where the Mind is without Fear” – “Where the mind is without fear and head is held high; where knowledge is free, where the world has not been broken up into fragments by narrow domestic walls; where words come out from the depths of truth” (Gitanjali, Rabindranath Tagore, 1910). True to these words is the concept of a safe space in classrooms where students can freely express their honest opinions and ideas without the fear of being ridiculed or laughed at, where diversity is valued and respected, where every learner is included and his/her needs are met.

The author in this paper has particularly emphasized classrooms as safe spaces and raises the question “Am I creating a Safe space?” asking educators to reflect on this question as they perceive classrooms as safe spaces. Most of the time, classroom spaces are hierarchical and discriminatory in nature, thus promoting exclusion and inhibiting learning. Wagh (2022), describes the classroom as a site of consciousness-raising and thus, a space of transformative politics, and thus such spaces need to be nurtured by educators, students and other stakeholders (Wagh, 2023).

Why “Safe Spaces”?

Wagh (2023) in her paper comments on one hand about the ongoing discussions of the idea of safe spaces in different contexts within institutional spaces and on the other hand highlights the need for a discussion of these issues as experienced and expressed within the classroom. Student campaigns against discrimination have repeatedly raised fundamentally serious questions about the classroom as a space that can replicate power structures that exclude students (Arunima, 2007 as cited in Wagh 2023). Wagh (2023) highlights the lack of attention paid to the classroom dynamics where students and teachers with heterogeneous intersecting identities engage in critical discussions.

The need to provide safe and inclusive learning space is aligned with the Sustainable Development Goals (SDG) Goal 4 – Quality Education that seeks to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (The Global Goals, n.d.). One of its targets is to build and upgrade inclusive safe schools to provide safe, non-violent, inclusive and effective learning environments for all (UN Academic Impact, 2023).

OECD 2022 report demonstrates that education is correlated with most of an individual’s key life outcomes and the levels and quality of education that individuals receive have an impact on society in terms of increased GDP growth, reduced healthcare costs and social spending, and improved social cohesion. The report highlights the importance of an inclusive and safe space in driving human rights, educational, personal and societal gains and enabling diverse students to fight stigma, stereotyping, discrimination and alienation in schools and societies. The importance of the inclusion of diverse students in educational settings has many drivers, spanning from human rights to educational, personal and societal gains. Inclusive education has been shown to provide benefits for all students in improving the quality of education offered, as it is more child-centred and focused on achieving good learning outcomes for all students, including those with a diverse range of abilities (UNESCO, 2009). A carefully planned provision of inclusive education can improve students’ academic achievement, while also fostering their socio-emotional growth, self-esteem and peer acceptance (UNESCO, 2020). The World Bank also argues that equity and inclusion in education are essential for shared prosperity and sustainable development (World Bank Group, 2016).

What do we already know about “Safe Spaces”?

Gayle, Cortez, and Preiss (2013), in their study on Safe Spaces, Difficult Dialogues, and Critical Thinking, discuss the tensions involved with trying to balance building “safe spaces” and critical thinking capacity and examine difficult moments in the intersection of comfort and evaluation. They have focussed on Magolda’s (2000) four categories for inclusive and effective learning environments, which include (1) respecting students and motivation of critical thinking; (2) practice analyzing complex, difficult topics; (3) peer learning and risk-taking; and (4) support encouraging deep analysis and students are aware of these features of safe spaces, and instructors can leverage this understanding.

Holley and Steiner, (2005), while exploring students' perspectives of “safe” and “unsafe” classroom environments report that students offered a wide range of instructor, fellow student, personal, and classroom characteristics that contribute to the creation of safe and unsafe spaces and place most of the responsibility for classroom environment on instructors. They found that 'the vast majority of students consider the creation of a safe space to be significantly important and that the majority of students perceive that they learn more in such a classroom' (p.61)

Sautner (2008), argues about the lack of consensus and consistency in the usage and definition of safe spaces in schools and the challenge of bringing clarity for educators and teachers about the concept of safe space and translating it into their practices. MacKay (2006) cited in Sautner (2008), shows the association between a safe space and better student outcomes. Sautner’s study explored the factors that contribute to inclusiveness and making the school a safe space. The findings of this case study were similar to previous studies which exhibited connecting factors between inclusive and safe schools. A common vision, commitment, collaboration, and ownership, were a few of the connecting factors highlighted in this study.

Goldwasser & Hubbard (2019) analyze student feedback regarding what creates a sense of inclusiveness and belonging inside undergraduate classrooms. Saunders and Kadia (Cited in Goldwasser, et al., 2019) refer to classrooms as spaces where educators and students work together to create and sustain a safe, supportive environment allowing for freedom of expression. In addition to the feeling of inclusivity, students' sense of belongingness, that is the feeling of being respected, valued, accepted, and cared for, impacts academic outcomes and general well-being. The study highlights the strong impact of educators' words, actions, and pedagogical decisions in creating exclusive classroom spaces. This study meticulously addresses the cost factor involved in creating safe and inclusive classroom spaces and brings to light the fact that financial costs involved are considerably nominal and it's the time costs that educators require to invest in creating inclusive and safe classroom spaces through

critical reflection on one's pedagogical tools, curricular decisions, and self-awareness/preparedness.

Expanding on the existing literature, the author tries to deliberate on the question 'Am I creating a Safe space? And engages in the discussion about how students would expect this safe space to be. Safe space does not just refer to the comfort in physical space but also expands to emotional, psychological, and social safety, etc. Recognizing the importance of a safe and inclusive classroom space, the author shares from her own experiences, a few examples of unsafe spaces and reflects on ways of creating safe spaces through inclusive curriculum, inclusive teaching and learning and assessment, integration of Social-Emotional Learning (SEL) in classrooms.

Re-visiting the concept of “Safe Space”- Experiences Shared

A safe space is not just about comfort, easy-going or pain-free, but much more beyond the simplistic nature of safety. A classroom space can be safe or unsafe based on various dimensions that influence that space. Thus, the space we conceptualize as safe or unsafe is very relative and contextual. There can be elements of intention, use of power, academic rigor, transitional periods, social standing, cultural mismatch, identification process, personality characteristics, physical infrastructure, and intersecting within classroom spaces.

A few examples from the author's experiences of classrooms, where the safety of learners is threatened, are shared. On one hand, we may claim a safe space to be one, where all ideas of students are accepted and no one is challenged or uncomfortable, on the other hand, such safe spaces may result in a non-academic environment that hinders student learning. A conflict-free classroom may not be able to encourage imagination, creativity, and critical thinking thus creating barriers to learning and growth of students. A classroom space embedded with a wide range of diversity of learners from different backgrounds can be manifested with pain, harm, intolerance, lack of safety, and hostility when students' peers express honest views and opinions reflecting contradicting perspectives. Difficult conversations within classrooms challenge student participation and engagement, thus making this space unsafe. Bullying or exploitation can arise out of intention or power and can be either overt or covert. Violent acts like hitting, corporal punishment, cyberbullying, verbal aggression through sarcasm, dominance, labeling students in the classroom, coercive interactions, etc. can be detrimental to safe classroom space. The use of non-verbal expressions through unpleasant facial expressions, body language, and mannerisms are some of the hidden invisible actions of discrimination and violence that are sometimes unintentionally manifested in educators' routine practices. Judgment based on factors like culture, previous experiences, social status, dressing, stereotyping, etc., exacerbates the nature of safe spaces. These are challenges faced by academically, psychologically and emotionally safe classroom spaces.

A student's perspective of being safe is to be free from bias, devoid of fear, emotionally safe, psychologically safe, being included, being respected, being recognized, free from any kind of discrimination (verbal, action, mannerisms, etc.), being treated fairly and justly and of all being accepted and not tolerated.

An academically, psychologically and emotionally safe classroom space is where students:

- feel safe to ask questions, seek clarification and express their thoughts,
- feel safe to share their feelings and express their emotions,
- feel safe speaking up, contributing to class discussions and sharing their ideas,
- are willing to take risks, collaborate, and feel more empowered and engaged,
- can give and receive feedback respectfully, share their opinions, give constructive feedback to their peers and accept feedback,
- can overcome the moments of discomfort involved in thinking, discussing, and listening to others about disputable topics and ideas.

WHAT CAN I DO TO CREATE “SAFE SPACES” WITHIN CLASSROOMS?

Three broad areas where educators can work in order to create safe spaces in classrooms are: Inclusive Curriculum; Inclusive Teaching, Learning and Assessment; and Integrating Social-Emotional Learning (SEL) in the Classroom.

1. Inclusive Curriculum

An inclusive curriculum is one in which access and participation in courses for all students are taken into consideration (Morgan & Houghton, 2011 as cited in BAG Project, 2020). An inclusive curriculum enables to minimization of barriers and reflects multiple perspectives thus having a positive effect on students' experiences and outcomes.

To have an enriching inclusive curriculum that can enable create safe spaces, we can **use a diverse range of resources**. The course content should be a mix of various kinds of teaching-learning resources like case studies, scenarios, research articles, real-life and practical examples, vignettes, etc. reflecting multiple perspectives and voices of individuals from a wide range of cultural, ethnic, linguistic and religious backgrounds drawing on knowledge produced across the globe. This enables learners to reflect on their own and other's backgrounds and identities, creating an inclusive and safe learning environment.

Contextualize course materials. Many times, content in textbooks or reading materials and teachers' voices predominantly reflect and dominate a particular culture or background. The course content may have been developed within a certain cultural and historical context. These contexts and

the underlying assumptions need to be explicitly explained to learners to avoid any kind of value judgment and alienation of learners and students need to be sensitized towards issues or ideologies that may be aligned with ongoing academic discourses. This helps students develop a sense of identity and flourish in a safe and inclusive space. For example, when teachers ask students to identify and name a few scientists or give an option of selecting names of a few scientists from a given list of scientists, teachers need to make conscious efforts to broaden the scope of this exercise to include a wider representation of scientist across the geography. Including women scientists, scientists from various linguistic, ethnic and cultural backgrounds, scientists from different states, etc. will help widen the learners' perspectives and identify role models that inspire them.

Acknowledge any limitations in the representation of course material. Textbooks, reference books, and course materials sometimes tend to include examples that are quite stereotypic or inherently reflect inequalities. For example, the association between gendered words and achievement, appearance, work, etc. is a very common feature visible in the textbooks in the Indian context. Gender bias, patriarchy, and misrepresentation of women are very prevalent in the textbook illustrations and find their way into classroom discourses. Teachers need to discuss elaborately with students the rationale behind such discriminations or stereotypes and should encourage students to challenge and question the inequalities and stereotypes inherent in the representation of course materials, thus paving the way for growth and a change in the attitude of students.

Avoid stereotypes in course content and celebrate diversity. Teachers need to carefully review the course content to ensure that the material does not perpetuate exclusion by engaging with learners and providing them with a wide range of examples through their classroom discussions, presenting problem-based scenarios that reflect equality and inclusivity positively. The teaching-learning process in the classroom should allow students to acknowledge diversity by seeing themselves and others reflected in these curriculum discourses positively and inclusively.

Increase one's pedagogical knowledge. Educators should themselves be knowledgeable about the pedagogies that speak to questions of diversity, multiculturalism, multilingualism, inclusion, etc. Collaborating with peers and colleagues specialized in different areas helps broaden educators' repertoire of readings and resources and explore different aspects of inclusive curriculum design and pedagogy to enhance one's understanding of issues, concerns, and topics that may be disputable and questionable.

Inclusive Teaching, Learning and Assessment

Inclusive Teaching, Learning and Assessment refer to how pedagogy, curricula and assessment

are designed and delivered to ensure relevant and meaningful engagement for students by appreciating their differences and views for enriched learning (Hockings 2010 as cited in BAG Project, 2020). Inclusive Teaching and Learning and Assessment helps students to be equipped and competent for diverse working environments, facilitates students' values of an inclusive approach to teaching and particularly, inclusive assessment benefits students by considering their differential and varying abilities (O'Neill, 2011 as cited in BAG Project, 2020).

To have an enriching inclusive Teaching and Learning and Assessment that can enable create safe spaces, we can **reflect on one's own assumptions about students**. Student diversity is a very common characteristic of a classroom. Teachers' assumptions about students' background, ability, prior knowledge, etc. influence teacher-student interactions, impacting students' learning. Teachers should get to know their students and withhold the assumptions or beliefs that they may come up with.

Set explicit expectations for students. Teachers should set and articulate the learning aims, objectives and expectations including the assessment criteria to facilitate students' abilities to meet conflicting priorities. Subject-specific or discipline-specific understanding of ideologies and principles need to be explicitly identified and communicated to students to help them appropriate their understanding to the discipline-specific context.

Build rapport with students. Teacher-student relationships are very crucial in creating safe and inclusive spaces in classrooms. To strengthen these positive relationships, teacher-student rapport and student-student rapport have to be strongly built in classrooms. Knowing students by name, sharing personal interests and learning process, through group activities, and collaborative exercises, help in building rapport and creating a safe space for students where they can be motivated and feel included.

Avoid ignoring or singling out students. Often there are a few students in classrooms, who feel isolated, alienated, marginalized, excluded, invisible or out of the group. Their identities are underrepresented and they encounter unpleasant experiences which in turn have consequences on their performance, their relationships with others and create a very unsafe space in classrooms. Teachers should avoid ignoring and singling out these students and ensure that they feel recognized and included as every other student in the class.

Conduct a prior knowledge assessment. Students come with a varied range of prior knowledge, skills, and competencies. It is not conducive to seeing every student at the same level of knowledge and attitudes. This will exacerbate the feeling of exclusion in classrooms. Teachers need to understand every student's strengths and weaknesses to determine the appropriate level of challenge for each student. A pre-test assessment can be adopted by teachers to understand the level of each student and thus tailor the teaching and assessment according to the needs of students. This will also help students understand

their strengths and weaknesses. Prior knowledge assessment thus enables an inclusive classroom space where every student's needs are met.

Design and facilitate effective group work. Creating heterogeneous groups of students for group work enables them to work together and engage with multiple perspectives and ideas and also enhances team working capabilities. Teachers should employ strategies to facilitate a collaborative environment and that ensures learning for every student in the group. Teachers need to establish clear expectations in consensus with students, so that they are accountable and responsible in promoting inclusive and respectful interactions amongst themselves.

Offer a diverse range of assessment methods. A diverse range of assessment methods like writing tests, oral presentations, creating audio-visual materials, objective tests, quizzes, etc. ensures fairness in the assessment of student learning and reflects the needs and interests of a diverse set of students in the classroom. This also helps create an inclusive space in classrooms where every student can showcase his/her capacities and capabilities.

Integrate Social-Emotional Learning in the Classroom

The foundation of social-emotional learning lies in creating a safe and inclusive environment. Conscious and intentional integration of social and emotional skills has a positive impact on individuals in almost every area of life. To integrate social-emotional learning in classrooms to create safe spaces, we should adopt the following strategies.

Know your students. Teachers need to make students feel recognized as individuals by calling them out by names and also providing them opportunities to learn each other's names. Taking the time and effort to learn and correctly pronounce a student's name will make the individual student feel valued and provide an opportunity to model inclusive behavior for all students.

Responding to Students' Perspectives and Needs. Teachers need to be responsive to students' needs. This helps in building trusting relationships. Listening attentively to what a student has to say or share, getting to know about students' identities as they perceive them, creating ample opportunities to build and sustain relationships, help in creating a responsive environment and build the structures that support belonging and emotional safety. Students feel valued and supported in school when their teachers are responsive to their perspectives and needs.

Affirming Student Identities. Teachers should ensure that the teaching materials, resources, books they use, the examples they illustrate, the images they use in presentations, etc. in class reflect

diversity and give students a feeling of their reflection in these discourses. Students should get opportunities to share their experiences and the diversified experiences can be harnessed in teaching learning. The changing and dynamic nature of identities can be reflected through discussions engaged with students and their extended community of parents and caregivers.

Establishing Consistent Routines and Procedures. Establishing consistent rules and procedures helps learners to be aware of expectations from them and thus be emotionally secure. Routines that are created in consensus with students help in the smooth and effective running of classroom procedures and thus enable students to focus on learning. Carefully planned routines and procedures provide opportunities for student leadership and socio-emotional learning.

Creating space to share what matters. At times students come across unpleasant experiences from happenings around them. Such events can be very disturbing and traumatizing. Talking to them about it, giving them an opportunity to talk and share what they think about it, and how they are affected by it, helps them to face these and similar events and deal with their feelings and emotions in a regulated manner.

Normalize feelings. Recognizing the feelings and emotions of children and helping them understand and be aware of their own emotions ensures their safety and security. Validating students' feelings and making them feel normal helps them share their voices freely about a situation that is bothering them and feel safe and secure.

Address challenging behavior head-on and use these as teachable moments. Teachers should not ignore challenging and deviant behaviors of students, as this may tend to create exclusion amongst students. Difficult moments in the classroom should be converted into teachable moments and opportunities for learning. Stressful moments in classrooms can be directed towards useful dialogue by encouraging students to take different perspectives using role play or maintaining reflective journals to write down their thoughts and feelings.

Teach and Practice Active Listening. Teachers should practice active listening to support inclusivity. It can help create a space where students feel cared for and can exercise their agency in a learning environment. Appropriate body language including facial expressions and eye contact, practicing reflective speaking skills like paraphrasing, repeating, probing, clarifying and remembering, providing timely and constructive feedback, withholding judgment and being non-judgmental, etc. are a few strategies that provide a space for inclusive dialogue in classrooms.

Incorporate Collaborative Learning Activities. Promoting collaborative learning amongst students in classrooms enables them to put away their differences and work together for a common vision, share ideas and use problem-solving, thus enhancing social awareness and relationship skills

amongst them. Students develop the socio-emotional skills of teamwork, communication, empathy, and relationship building through collaboration.

Encourage Reflection and Self-Assessment. Students should be encouraged to reflect on their emotions and behaviors to promote self-awareness amongst them. Regular and consistent integration of reflection activities can promote students' socio-emotional development and help them become more mindful of their behaviors and actions.

SUMMING UP THE CONCEPT OF “CLASSROOM AS SAFE SPACES”

The idea of “Safe spaces” has always been a contested area and been problematic. This is very much in alignment with Sautner's (2008) argument about the lack of clarity in defining safe spaces. How can one conceive or imagine a safe space? In a world that is engulfed with conflicts, violence, war, hostility, terror, etc. there is certainly a strong need for physical safety, but a learning space in education calls for something more and beyond this physical space. There are various elements like psychological, emotional, social, and philosophical aspects, that this learning space constitutes. Educators can kindle the path of a safe space through pedagogical conditions and classroom practices where students can be free from fear, hostility, bias, discrimination, inequalities, injustice and many other forms of marginalization or exclusion (Keys, 2019).

Education is the basic building block of every society and the best investment towards building healthy and equitable societies. Article 26 of the 1948 Universal Declaration of Human Rights states that “Everyone has the right to education”. With this article applicable to the universe, safety as a privilege should be made accessible to every individual. Then, how are we imagining these safe spaces, how are we going to create these spaces and what is the challenge of co-existence of these safe spaces within the tensions involved with trying to balance building “safe spaces” and critical thinking capacity as discussed by Gayle, Cortez, and Preiss (2013).

As we have seen, classroom spaces are hierarchical and discriminatory in nature, thus promoting exclusion and inhibiting learning. Wagh (2022), describes the classroom as a site of consciousness-raising and thus, a space of transformative politics and thus such spaces need

to be nurtured by educators, students and other stakeholders (Wagh, 2023). Classrooms are also spaces of diversity, where learners from varied backgrounds, cultural, linguistic, class, and caste come together for learning. It is assumed that a diverse environment or setting is inclusive and this is quite problematic in nature. Lack of openness to diversity or stereotypes and prejudice of both teachers and students can result in negative behaviors and actions (Keys, 2019).

Addressing issues of diversity or inclusion can be difficult in learning environments, as individuals tend to avoid issues that make them uncomfortable. “Safe” in the context of classrooms does not just mean being defended by or defending contrasting views and perspectives; rather it means feeling “safe” to express openly, perspectives and engage in discussions of disputes that may be embedded within curriculum and classrooms or outside of the mainstream discourse. These discourses may be focused on sensitive issues, or arise from the discord in cultural, ideological and personal beliefs and attitudes of either the educators or the students (Harpalani, 2017). In such situations, it becomes difficult for teachers to take any position and compel them to either ignore injustice, inequalities, or exclusion or encourage positive dialogues in the classroom around these issues while maintaining an easy-going classroom environment. Creating safe spaces for difficult dialogues is essential to make learning environments where dominant ideologies are challenged and students grapple with and through "new concepts and challenging social issues at a cognitive level, while they also experience them effectively, either internally or externally" in an inclusive environment (Jehangir, 2012 as cited in Gayle, Cortez & Preiss, 2013; Mayo, 2002). Sometimes, teachers fail to create these spaces without even realizing it.

Classroom spaces provide ample opportunities to students, thus contributing to educational experiences that can enrich the learners. Curriculum experiences with diversity has positive outcomes on student outcomes and this is possible through educators’ intervention and practices within the classrooms and beyond. This is in conjunction with Holley and Steiner’s (2005) findings about students’ perspectives of “safe” and “unsafe” classroom environments, where students place most of the responsibility for the classroom environment on instructors. The author in this paper, while deliberating on the question “Am I creating a Safe space?” suggests to educators, ways of creating safe spaces through inclusive curriculum, inclusive teaching and learning and assessment, and integration of SEL in classrooms.

She elaborates how an enriching inclusive curriculum can minimize barriers to exclusion through use of diverse range of resources, contextualizing course materials, acknowledging any limitations in the representation of course material, avoiding stereotypes in course content and celebrating diversity and increasing one’s own pedagogical knowledge.

She describes how educators through an enriching inclusive teaching and learning and assessment can enable create safe spaces by reflecting on their assumptions about students, setting explicit expectations for students, building rapport with students, not ignoring or singling out students, conducting a prior knowledge assessment, designing and facilitating effective group work, and offering a diverse range of assessment methods.

The author delineates for educators, strategies for integrating SEL in the Classroom like knowing

one's students, responding to students' perspectives and needs, affirming student identities, establishing consistent routines and procedures, creating space for students to share what matters, normalizing feelings, addressing challenging behavior head on and use these as teachable moments, teaching and practicing active listening, incorporating collaborative learning activities, and encouraging reflection and self-assessment.

In recognizing the classroom as a space of vulnerability, the concept of "safe space" has proven helpful yet also potentially problematic. Because what is safe for some is certainly not for others and because "safety" can be a privilege to which not all have access, can safe spaces exist? This chapter interrogates what is at stake in this pedagogical concept, asking: What are our responsibilities as queer educators in creating certain types of environments? In queer pedagogy, should we be wary of a discourse of "safety" that may feed into neoliberal focuses on security and surveillance? What tools can we use to challenge this rhetoric while maintaining a focus on the politics of speaking and being heard within both educational institutions and queer communities?

The paper extends the scope of exploring classrooms as safe spaces at different levels of schooling and in extremely conflict-ridden areas that are highly vulnerable and tend to be more exclusive and unhealthier for learners.

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INCLUSIVE EDUCATION SYSTEM IN ARMENIA AND PERSPECTIVES FOR ITS DEVELOPMENT

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ABSTRACT

This article examines to what extent Armenia has advanced in inclusive education and the remaining institutional, social, cultural, and attitudinal barriers hindering the smooth implementation of universal inclusive education. It examines why it is important to include children with disabilities in mainstream classes and favorable attitudes toward inclusive education among teachers, administrators, and children.

Inclusive education is the process of integrating individuals with disabilities into regular classrooms, and it helps reflect the commitment to equal educational opportunities as outlined in the UN Convention on the Rights of Persons with Disabilities (United Nations, 2006). Inclusive education assumes that diverse and unique students are learning side by side within the same school and classroom context. It treasures each student's unique contribution to the learning process (Open Society Foundation, 2019). However, the definition somehow conceals the complexity of inclusive education, which requires appropriate strategies, inputs, and benchmarking.

The Inclusive Education system was officially embraced in 2003 and has more than 20 years of history. In the meantime, many barriers hinder its implementation, such as a lack of professional development for teachers, reasonable accommodations, assistive technologies, difficulty creating relationships between classmates, inadequate parent participation, and necessary operational procedures aligned to its practice.

Keywords: *inclusive education, reasonable accommodations, universal design for learning, children with special educational needs, autism spectrum disorder, assistive technologies.*

INTRODUCTION

The term “Inclusive Education” considers an understanding of inclusion as an approach to education for all children. At the core of inclusive education is the human right to education. Various

international documents specify the principles of inclusion for guiding the states towards their efforts to introduce a rights-based approach to education. According to UNICEF, an education system is inclusive if it “includes all students and welcomes and supports them to learn. No one should be excluded. Every child has a right to inclusive education, including children with disabilities” (United Nations, 2006; UNICEF, 2012). This statement is very much in line with the UNCRPD General Comment No. 4 regarding inclusive education as “a fundamental human right for all learners” and “a principle that values the well-being of all students, respects their inherent dignity and autonomy, and acknowledges individuals’ requirements and their ability to be effectively included in and contribute to society”. UNESCO views inclusion as “a dynamic approach of responding positively to pupil diversity and of seeing individual differences not as problems, but as opportunities for enriching learning (UNESCO, 2020). It is essential to consider inclusion as a continuous process of systemic reform that envisages changes in teaching and the curriculum, school buildings, classrooms, play areas, transport, policies and strategies in education with a vision to provide all students of the relevant age range with an equitable and participatory learning experience and the environment that best corresponds to their requirements and preferences. Therefore, the move towards inclusion is not simply a technical or organizational change but also a movement with a clear philosophy.

Is inclusive education, which integrates children with disabilities into regular classrooms, the best approach, or does it create challenges for teachers and children? In this article, we will discuss the challenges and benefits of inclusive education and provide answers to whether this idea is necessary for children's holistic development.

PERSPECTIVES FOR INCLUSIVE EDUCATION DEVELOPMENT

In Armenia, historically, children with disabilities and special educational needs were often excluded from mainstream education. Negative attitudes towards disability, combined with feelings of shame, led large numbers of children to be sent to special boarding schools, particularly in rural areas. Since the 1990s, Armenia has adopted several important documents, both international and national, that contributed to the expansion of inclusive education policies and practices in the country. Armenia ratified the UN Convention on the Rights of the Child (CRC) in 1992, the inclusive Education Concept Paper was adopted in 2005, and the UN Convention on the Rights of Persons with Disabilities (CRPD) was ratified in 2010, thus confirming the country’s political will to ensure the rights of persons with disabilities to family life, leisure, and sports. After ratifying the CRPD, the social sector regulatory framework was adjusted to the convention's requirements (United Nations, 2006; United Nations, 1992).

Inclusive education was implemented by one school in Yerevan, the capital of Armenia, in 1999. Inclusive Education was implemented not in all schools of the Republic of Armenia, but only in those where directors and teachers found it essential to provide equal opportunities for the development of all children and applied to the Ministry of Education, Science, Culture and Sports for the right to implement inclusive education. In early 2014, the Government approved the Action Plan and Methodology for Piloting the Holistic Approach to Disability Assessment based on the WHO International Classifications of Functioning, Disability and Health Framework (Government of the Republic of Armenia, 2014). Under this plan, later in 2014, the government adopted the amendments to the Law on Mainstream Education, providing a legal and financial obligation for all children with disabilities to be accepted in mainstream schools by 2025 (National Assembly of the Republic of Armenia, 2009). With the introduction of the Law, two levels of pedagogical-psychological assessment/support to children with special educational needs were introduced: the first level should be provided by schools/kindergartens, the second by regional pedagogical-psychological support centers, and the appeal process by the Republican Pedagogical Psychological Center.

The Government of Armenia also approved the Action Plan and Timetable for introducing the Universal Inclusive Education system by 1 August 2025 (Government of the Republic of Armenia, 2016). According to the Plan, all special schools should gradually transform into regional pedagogical-psychological support centers, providing regular professional support to schools and preschools of their catchment area to assess the special educational needs of children and arrange individual specialist support according to the individual education plan and/or individual development plan of children. In 2021, the Law on “Rights of Persons with Disabilities” and the 2023-2027 Program for Social Inclusion of Persons with Disabilities were adopted (Government of the Republic of Armenia, 2023; National Assembly of the Republic of Armenia, 2021).

While numerous pieces of legislation are in place that promote deinstitutionalization programs and accelerate the progress of inclusive education practices in Armenia, there are still barriers at the societal and educational levels in ensuring that children feel included and successfully educated alongside their peers. Because of Armenia’s Soviet history, there are residual approaches and stereotypes about the teaching process, and teacher-centered education is still the norm. Thus, in recent years, the Armenian government has prioritized education for teachers to ensure equity and quality in access and learning.

STATE OF THE ART

Many buildings in Armenia are historic, making Universal Design challenging. However, many buildings are retrofitted to improve physical accessibility, and some accessibility approaches, such as

creating ramps, installing handrails, etc., have been very effective.

The role of several educational theories like social constructivism, humanistic approach, and universal learning design (UDL) contribute to addressing challenges in inclusive learning. **Social Constructivism** shows how collaborative work can be used in classrooms to reduce peer rejection (Vygotsky, 1978). The humanistic approach stresses the comprehensive growth of all individuals while addressing the needs of learners with disabilities. Social constructivism and inclusive education share the same idea due to their emphasis on social interaction, collaboration, and recognizing diverse perspectives. This approach is particularly beneficial in implementing inclusive education. It may be used as the basis for addressing different obstacles in the inclusion where students of all abilities can succeed.

Universal Design for Learning focuses on promoting an accessible learning environment and eliminating physical barriers to foster successful growth for all students. The proactive approach acknowledges individuals' unique needs, abilities, and learning preferences to establish a conducive environment that fosters successful growth for all. The Universal Design for Learning (UDL) framework aims to create inclusive and equitable learning environments by providing multiple means of representation, engagement, and expression (CAST, 2018). Universal Design is a way for teachers to support all students' learning, even if those students learn differently. For example, in Armenia, professionals are taking steps to reframe the understanding of disability. Strategies like examining human differences through students' literature (Avagyan, Baghdasaryan & Sargsyan, 2016) and developing new norms in teacher development improve understanding and acceptance of human diversity. For example, the purpose of assessments for children with disabilities is shifting from a perspective and focus on a child's problems to a perspective that a child has resources and potential within inclusive classrooms.

A large-scale study conducted by UNICEF in Armenia in 2012 among children with registered disability status found that a 3rd of younger children did not attend kindergarten, and a 5th of school-age children did not attend school. One out of every eight children with disabilities lived in orphanages or residential care institutions, rarely leaving them and having little access to mainstream education. Only a quarter of children with disabilities receive the services described in Individual Rehabilitation Plans or receive the assistive devices they require (UNICEF, 2012).

According to the data for 2024, the number of children with Special Educational Needs in Armenian mainstream schools is around 8800, and around 500 children live in 7 special schools (MESCS, 2024). While the Deinstitutionalization reform targets children with disabilities (with the introduction of specialized foster care and expansion of alternative community-based services), there are

three specialized orphanages in Armenia with around 1000 children, the vast majority (more than 80%) of whom are children with disabilities. With the amendments to the Law on Mainstream Education, most special schools are planned to be transformed into Special School-Resource Centers. The change started with the Special School for Children with Hearing Impairments, where the pilot program on successfully reintegrating 15 children with hearing impairments into mainstream education and preventing institutionalization was realized.

Armenian experience in inclusive education and disability inclusion is considered one of the most advanced in Europe and Central Asia. Most of Armenia's initiatives in this field have been documented in regional and global reports and publications as the basis for learning for other countries. In the meantime, there are still many barriers that hinder children with disabilities and/or special educational needs from being fully included in mainstream education.

Challenges and barriers in full implementation of inclusive education

Inclusive Education in Armenia today faces several obstacles to the integration of children with special educational needs in mainstream classes, which include inadequate teacher preparation, rigid curriculum structures, limited support services, inadequate infrastructure, and gaps in knowledge among parents and educators regarding laws, regulations, and resources about inclusion. Other significant challenges are listed below:

Lack of teachers' training in inclusive education

One of the key issues today is the lack of preparedness of mainstream education teachers and the continuous resistance of some teachers to teach children with disabilities and create an inclusive setting in the classroom (Jardinez & Natividad, 2024). Lack of teaching methodologies, assistive technologies, and support services that would effectively include children with disabilities in class activities often leads to either poor quality inclusion or even exclusion. When Armenia committed to inclusion, it shifted its focus from a service-based to a rights-based model. This means that students with special educational needs will still receive the services, but greater focus will be placed on their right to participate in education in their school.

Lack of adapted learning materials

Most school buildings and sanitation facilities are not adapted to the needs of children with disabilities and special educational needs. Physical obstacles can impact the learning of children with special educational needs (Jardinez & Natividad, 2024). These barriers include non-inclusive sports programs, inadequately constructed classrooms, inaccessible facilities (stairs without ramps), and a lack of adaptive equipment (such as braille educational materials, translators for sign language, and screen readers).

Social integration and peer relationships

It is important to acknowledge that confident children with special needs may encounter instances of peer rejection within inclusive educational settings, which could have negative implications for their social conduct and self-perception (Chen, Huang, Liu & Wang, 2022). Rejection may have negative consequences, especially on the individual's self-esteem, which may result in decreased self-confidence and perhaps limit their social growth, making it harder for them to build solid connections with their classmates. Some students with impairments may also face bullying because of their condition. This phenomenon may induce feelings of loneliness and isolation among students with disability and may lead to increased stress and anxiety. Also, research performed by Coelho (2019) has indicated that the idea of inclusion may not always be suited for specific conditions, especially for those diagnosed with autism spectrum disorder (ASD). The complex social and sensory requirements may pose difficulties within inclusive environments, potentially hindering social growth and overall welfare. ASD individuals may struggle with social interactions and communication, impacting their ability to engage effectively in academic and social settings.

Legal and policy barriers

Inadequate operational procedures or enforcement mechanisms related to inclusive education can impede progress. One of the factors contributing to challenges in inclusive education is limited comprehension of regulations and personalized assistance in this area. Educators and administrators in Armenia struggle to navigate the complexities of legal frameworks, the complex environment of inclusive policies, and the art of individualized support for children with various needs. On 11 August 11, 2022, the Government of Armenia approved the Order (No. 1265) on "Reasonable Accommodations", which will enable children with disabilities to be provided with necessary high, low technological means, assistive devices, and support services (sign language interpreters, assistants, etc.) to ensure smooth and equitable integration of children with disabilities along with their peers in mainstream education (Government of the Republic of Armenia, 2022). In the meantime, consultations conducted with school principals from 20 schools in different regions of Armenia revealed that none of them have so far operationalized this order due to a lack of knowledge, guidance and enforcement mechanisms for its implementation, as well as a low amount envisaged for a child with special educational needs to benefit from this entitlement.

Parents' involvement

Engaging parents and caregivers as partners in inclusive education is essential for their children's success and smooth social inclusion in the learning process. However, there are many barriers to parental involvement in the education of children with special educational needs, including low level of parental

education, teachers' and school administrations' negative attitude towards parental participation in education, parental economic constraints, societal perceptions and stigmatization, parental stress and depression, lack of support, parental perceptions of teachers-school staff, mismatched expectations (between parents and teachers), the number of siblings in the family, severity of disability, and absence of policy guidelines/framework that would guide parental involvement in education (Oranga, Obuba & Boinnet, 2022). Understanding the role of families as advocates and partners with the educational team is a significant shift for both families and professionals because families hold a wealth of information and know the child in far more intimate ways than professionals. Concrete efforts towards training parents on inclusive education and supporting them to become “experts” to support their children's learning journey will bring positive changes towards inclusion.

CONCLUSION

In conclusion, inclusive education provides equal opportunities for children with disabilities to learn and receive quality education in a regular classroom. The introduction of Universal Inclusive Education is a significant achievement. However, therapeutic, pedagogical, and psychological support is not always adequately available. There are many issues and challenges to be solved regarding the development of social and academic skills of children with disabilities, including teacher education and training, limited parental support, social and physical environment adjustments in schools, and parents' expectations, attitudes, and beliefs. There are still also issues with the quality of education and support services children with disabilities receive. Inclusive education reforms continue to focus only on preschool, primary, and secondary education levels, with limited efforts at vocational training, tertiary education, lifelong learning, extracurricular, and social activities. Overcoming these barriers requires careful planning, which involves advancements in administrative support, policy development, and teacher preparation, as well as the incorporation of various educational theories into practice. Social constructivism claims the necessity for social interaction, collaboration, and recognition of various perspectives in establishing an inclusive and supportive educational setting. Incorporating humanistic concepts into inclusive education emphasizes the significance of promoting uniqueness, holistic growth, and a nurturing environment. In addition, the application of Universal Design for Learning serves as the basis for making educational learning accessible and responsive to the special needs of children. By acknowledging the worth of every child and placing importance on inclusion, these ideas help create a learning atmosphere that cultivates empathy, kindness, and equality for all children, regardless of their capabilities or impairments. As a result, children with disabilities can get significant advantages from inclusive education. It enables them to receive an educational experience inside a conventional

classroom setting and fosters a learning atmosphere that promotes diversity, empathy, and acceptance, contributing to students' overall development. The focus on building a community that values diversity acknowledges each individual's needs, and actively promotes understanding and connection draws attention to the significant influence inclusive education has on children's overall development. Finally, in order to implement promising practices of inclusive education in schools and the community, a commitment to the principle of inclusion from policymakers, minorities, schools, NGOs, parents, and others involved is necessary.

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IMPLEMENTATION OF SPEECH THERAPY SERVICES AND ASSESSMENT OF SPEECH DISORDERS IN REGIONAL PEDAGOGICAL-PSYCHOLOGICAL SUPPORT CENTERS

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ABSTRACT

The analysis of scientific-methodological literature, familiarization with the work experience of specialists from pedagogical-psychological support centers and public school teachers, as well as the study of the decisions of the Government of the Republic of Armenia regarding the assessment criteria and tools of an individual's functionality, indicate that the issues of speech therapy assessment for children with speech disorders, based on the WHO International Classification of Functioning, Disability, and Health (ICF), are underdeveloped. The Government of Armenia's 2003 Decision No.

780-N on "Medical-Social Examination Criteria" is often outdated. As of February 1, 2023, evaluations for individuals applying for medical-social examinations but not yet assessed are conducted according to the updated criteria set by this decision (Republic of Armenia, 2023).

The formation of a high-quality education system for children with special educational needs in Armenia and the challenges in implementing speech therapy assessments can be attributed to insufficient research and development in this area. Based on recent legislative changes, regional pedagogical-psychological support centers are responsible for evaluating children's special educational needs, providing relevant conclusions regarding their educational organization, offering support services, conducting consultations and training for teachers, and implementing other functions outlined by law.

Keywords: *speech therapy, speech disorders, pedagogical-psychological support, ICF framework (international classification of functioning, disability, and health), functional assessment, special educational needs, children, Armenia, standardized assessments, intervention strategies.*

LITERATURE REVIEW

Speech and language disorders have been the subject of extensive research within educational and psychological disciplines. Research highlights that speech therapy assessments are crucial in identifying communication disorders and ensuring early intervention strategies (Fornari et al., 2022). Studies emphasize the significance of standardized assessments in evaluating speech impairments and their impact on a child's educational performance (Coster, Khetani, & Haley, 2019). International frameworks, such as the WHO's International Classification of Functioning, Disability, and Health (ICF), have played a pivotal role in redefining assessment models by shifting from an impairment-based approach to a functionality-based approach (World Health Organization, 2007).

One of the critical challenges in speech therapy assessments is the lack of universal criteria for evaluation. Research indicates that assessment models should integrate medical and psycho-pedagogical frameworks to ensure a holistic understanding of a child's communication abilities (Johnston & Ng, 2018). The introduction of the ICF framework has allowed for a more structured approach to categorizing speech disorders, focusing on individual abilities and the role of environmental factors (Hall, Pedersen, & Jensen, 2022). However, studies also highlight inconsistencies in its implementation across different countries, with some regions facing resource constraints and inadequate training of professionals in applying these criteria effectively (Fornari et al., 2022).

In Armenia, research on speech therapy assessments remains limited, with existing studies focusing primarily on the role of pedagogical-psychological support centers and the application of government policies in special education (Aslanyan, 2021). While the Ministry of Education and Science

has established guidelines for speech therapy services (Republic of Armenia, 2017), further empirical research is needed to examine the effectiveness of these policies in real-world settings.

Studies from other regions provide valuable insights into best practices for speech therapy assessments. Research conducted in the United Kingdom and the United States suggests that early screening programs and standardized intervention strategies significantly improve speech outcomes in children with communication disorders (Lollar, Carlin, & Shapiro, 2020). Furthermore, evidence from Nordic countries emphasizes the importance of interdisciplinary collaboration in speech therapy, where specialists from different fields work together to develop individualized support plans (Hall et al., 2022).

The comprehensive study, analysis, and generalization of scientific-methodological literature allowed us to identify answers to the following key research questions of interest:

- The characteristics of speech therapy assessment for children with speech disorders in the Republic of Armenia.
- The effectiveness of properly structured speech therapy assessments and interventions in overcoming speech-related difficulties and improving educational outcomes in public schools.
- The relevance of evaluating speech disorders based on a psycho-pedagogical classification rather than a functional classification, as applied by leading specialists in the field, and the coding of such disorders under the 10th International Classification of Diseases (ICD-10) prior to the adoption of the WHO ICF framework (F80-89, F98.5, F98.6, R47.1).
- Theoretical foundations and perspectives on the organization and implementation of speech therapy interventions using various models of speech disorder assessment, as well as the role and significance of functional assessment in this process.
- The specific features of speech disorder identification, prevention, assessment, and provision of speech therapy services for school-aged children in Armenia are based on functional assessment results and the criteria for recognizing a person (child) as having a disability through functional assessment.

Overall, the literature underscores the need to refine speech therapy assessment methodologies in Armenia, incorporate global best practices, and ensure alignment with international classification systems. Future research should explore innovative assessment tools, digital solutions for functionality evaluation, and strategies for enhancing the professional training of speech therapists and educators.

RESEARCH METHODOLOGY

The study utilizes theoretical and experimental research methods, including theoretical analysis of the Republic of Armenia's government decisions and scientific-methodological literature on "Functionality Assessment."

The research involved a detailed review of specialized literature on functionality assessment and the unique aspects of conducting speech therapy assessments for children with speech disorders. The findings help establish theoretical and practical guidelines for evaluating communication and speech development in children and expand the availability of pedagogical-psychological services (Aslanyan, 2021; World Health Organization, 2007).

The pedagogical observations allowed the assessment of the nature and content of speech therapy assessments for younger school-aged children, both in territorial pedagogical-psychological support centers and within the educational process. The findings highlighted key challenges in the organization of speech therapy assessments, including the lack of appropriate speech development programs for younger school-aged children and the need to ensure awareness and professional development for speech therapists and native language teachers.

During these observations, the necessity of structuring speech therapy services according to the ICF framework became evident. Implementing a structured information database reflecting the ICF codes and assessment components would facilitate more precise and comparable statistical data for evaluating the current level of academic abilities of children with speech disorders and analyzing their potential for speech development (World Health Organization, 2001). Additionally, this approach would allow for the systematic monitoring of speech therapy services, enabling data-driven policymaking, needs assessments, and evaluation of service effectiveness (Fornari et al., 2022; Hall, Pedersen, & Jensen, 2022).

Furthermore, within the research framework, the modeling of a speech therapy assessment system serves as a fundamental step toward providing more targeted services and establishing accessible conditions for implementing a structured speech therapy model. Moving beyond focusing solely on existing impairments is essential, as medical diagnoses alone do not always accurately determine the required speech therapy interventions provided by a regional pedagogical-psychological support center (RPPSC) specialist (Johnston & Ng, 2018).

The analysis of speech therapy assessments conducted for younger school-aged children with speech disorders confirmed the effectiveness of the proposed speech therapy assessment model. The study identified the principles and approaches of speech therapy assessment, aligning with the philosophy of the International Classification of Functioning, Disability, and Health (ICF), established by the World Health Organization (WHO) (Aslanyan, 2021; World Health Organization, 2001).

Additionally, a controlled study validated the need for a standardized approach to speech disorder assessment and the corresponding pedagogical-psychological support conclusions. The results emphasized that such conclusions should be based on speech therapist evaluations within the RPPSC to

ensure optimal educational conditions and effective implementation of speech therapy interventions for children with speech disorders.

PARTICIPANTS

This expert research study (conducted during 2023-2024) included 360 participants, consisting of first to fourth-grade students. Among them, 180 children with speech disorders were assessed based on the severity of their speech impairment, categorized as follows:

- Mild speech disorders – 12.3%
- Moderate speech disorders – 37.4%
- Severe speech disorders – 32.6%
- Profound speech disorders – 17.7%

The study evaluated the degree of need for specialized educational and developmental conditions for these children and determined the necessity of speech therapy services tailored to their specific needs.

To obtain a more objective characterization of the participants and ensure a comprehensive analysis of the study results (specifically in assessing their speech disorders), the study classified participants based on documented evaluation procedures related to speech assessment. These procedures included:

- Educational documentation regarding speech evaluation,
- Conclusions from pedagogical-psychological assessments regarding the need for special educational conditions,
- Studies on the special educational conditions required for organizing the child's education.
- Based on these assessments, children with speech disorders were divided into four groups according to functional limitation thresholds, as defined by the WHO ICF (Table 1).

Table 1.

Functional Limitation Thresholds According to the World Health Organization's International Classification of Functioning, Disability, and Health (ICF).

Code	Level of Functional Limitation	Percentage of Limitation
xxx.0	<i>No any limitation</i>	0-4%
xxx.1	<i>Mild</i>	5-24%
xxx.2	<i>Moderate</i>	25-49%
xxx.3	<i>Severe</i>	50-95%

xxx.4	<i>Profound</i>	96-100%
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DATA COLLECTION AND ANALYSIS

• The study employed quantitative data collection methods to comprehensively evaluate speech therapy awareness related to assessment practices in Yerevan's No. 1, 2, 3, and 4 RPPSCs. The data collection included:

• Surveys and Questionnaires: Standardized surveys were administered to teachers, therapists, and parents, evaluating their understanding of speech therapy assessment procedures and their impact on children's educational progress (Johnston & Ng, 2018).

The observations and assessments conducted in RPPSC confirm that the effectiveness of speech therapy interventions for younger school-aged children largely depends on the application of speech therapy assessment standards and pedagogical-psychological evaluation criteria used to determine the need for special educational conditions. Aligning these assessments with internationally recognized classification frameworks, such as the WHO ICF, ensures a more structured and objective approach to evaluating children's speech development and functional limitations (World Health Organization, 2001).

At the study's initial stage, a social awareness survey was conducted among speech therapists and teachers (n=120), pedagogical-psychological support specialists (n=116), and students (n=80). The survey assessed their awareness and understanding of speech therapy assessment procedures.

The survey was conducted using systematically designed and structured questionnaires developed for this research. The questionnaire items were aligned with the criteria for determining the need for special educational conditions and the timeframe and scope of pedagogical-psychological support services, as outlined in the educational documentation.

The awareness assessment of pedagogical-psychological specialists and public school teachers focused on the RPPSC level and their role in speech therapy assessment implementation. The primary objective of this process was to evaluate the respondents' level of awareness regarding the services provided at the regional level, as these support services are exclusively available to children who have been assessed and formally identified as requiring Special Educational needs within the established regional assessment framework.

Based on the RPPSC level assessment results and the timeframes and scope indicators of pedagogical-psychological services, recommendations were made regarding the appropriate educational and developmental interventions for children.

Thus, the research analysis of speech therapy assessment practices conducted in Yerevan's No. 1, 2, 3, and 4 RPPSC provided insights into the existing challenges related to classification based on functional impairments. This analysis facilitated the development of optimized approaches for speech therapy assessment and, consequently, the improvement of speech therapy interventions.

During the validation studies, the research examined the specific characteristics of organizing speech therapy assessments within the framework of universal inclusion. The study also identified existing challenges, obstacles, and limitations in implementing inclusive education in public schools, particularly from the perspective of speech therapy service organizations.

RESULTS AND DISCUSSION

The study identified key findings regarding:

- The characteristics of speech therapy assessments for children with speech disorders in Armenia.
- The effectiveness of properly structured speech therapy assessments in improving educational outcomes in public schools.
- The appropriateness of using a psycho-pedagogical classification for speech disorders instead of a functional classification before adopting the WHO ICF framework in the 10th International Classification of Diseases (ICD-10).
- The role of functionality assessment in organizing and conducting speech therapy interventions.
- The identification and provision of speech therapy services based on functionality assessment results for school-aged children.

Speech therapists, teachers, and other specialists' awareness levels vary significantly. Most RPPSC speech therapists and teachers are partially or fully aware of how pedagogical-psychological support services are provided. In contrast, pedagogical-psychological support team members and students show lower levels of awareness.

A notable gap is observed in understanding the criteria for functional assessment and determining the scope of speech therapy services, where only 2.5% of RPPSC team members reported full awareness. Similarly, only 4.5% of specialists were aware of how scheduled visits by PPSC speech therapists are organized and documented, highlighting the need for improved training and communication within support structures.

Most speech therapists from RPPSC and public school teachers (77.3%), along with pedagogical-psychological support team specialists (88.9%), clearly understood how to provide pedagogical-psychological support services at the territorial level. However, they did not apply standardized classification criteria for speech disorders aligned with the WHO ICF in organizing speech therapy

assessments.

Specifically, they did not utilize the clearly defined descriptors and qualifiers provided by the ICF-Children & Youth (ICF-CY) framework for speech assessment. They did not accurately classify speech disorders under activity and participation domains (d-codes) using the corresponding ICF codes, which are essential for ensuring a consistent and standardized assessment approach.

Through pedagogical observations, the study assessed the nature and content of speech therapy evaluations in RPPSC and school settings. The findings highlighted existing challenges in the organization of speech therapy assessments, including the lack of appropriate speech development programs for younger school-aged children and gaps in the knowledge and awareness of speech therapists and language teachers regarding speech therapy assessment (Republic of Armenia, 2017).

Additionally, speech therapy services must be aligned with the WHO ICF framework, ensuring a more precise and comparable statistical analysis of children's speech abilities and development. This would facilitate data-driven policymaking and service delivery for children with speech disorders (World Health Organization, 2007).

In response to the functional assessment questionnaire question: "What criteria determine the provision of speech therapy services at the regional level, and how is the need for Special Education established?" The overwhelming majority of respondents (68%) reported difficulty answering. Senior undergraduate and graduate students from the Faculty of Special and Inclusive Education at Khachatur Abovian Armenian State Pedagogical University (51%) had insufficient awareness of this topic. Furthermore, only 45% of RPPSC speech therapists and public school teachers, 3% of pedagogical-psychological support team specialists, and 26% of senior undergraduate and graduate students from the Faculty of Special and Inclusive Education were able to explain how the pedagogical-psychological support team and educators, with parental involvement, summarize the outcomes of Individualized Learning Plan (ILP) activities, record them in the relevant IIP sections, and provide parents with information on determining the type of speech disorder.

The results of the study indicate that a significant proportion of speech therapists from RPPSC, public school teachers, specialists from the pedagogical-psychological support team, and senior undergraduate and graduate students from the Faculty of Special and Inclusive Education at Khachatur Abovian Armenian State Pedagogical University possess only partial knowledge and practical skills regarding:

- The provision of speech therapy services based on functional assessment criteria,
- The organization and implementation of appropriate speech therapy interventions,
- The alignment of speech therapy services with standardized functional evaluation frameworks.

This suggests a need for further training and professional development to ensure more effective and standardized implementation of functional assessment-based speech therapy services.

Based on the analysis, the following main points are highlighted.

Characteristics of Speech Therapy Assessments for Children with Speech Disorders in Armenia

Speech therapy assessments for children with speech disorders in Armenia remain underdeveloped and inconsistently implemented. Although RPPSC and public school speech therapists conduct evaluations, standardized frameworks are lacking. The transition to functionality-based assessment has not yet been fully integrated, leading to variation in assessment approaches across different institutions. This gap highlights the need for uniform assessment tools and training for professionals to ensure reliable and practical evaluations.

Effectiveness of Structured Speech Therapy Assessments in Educational Outcomes

Structured speech therapy assessments are crucial in improving educational outcomes for children with speech disorders. Proper assessment allows for the development of targeted interventions, enabling children to access appropriate support services and maximize their learning potential. Studies have shown that early identification and structured therapy can significantly improve a child's academic performance, social integration, and language skills (Coster, Khetani, & Haley, 2019). In Armenia, the absence of a standardized approach results in delayed interventions, impacting the child's ability to develop effective communication and literacy skills.

Psycho-Pedagogical Classification vs. Functional Classification in Speech Disorder Assessment

Before adopting the WHO ICF framework, Armenia relied on a psycho-pedagogical classification system, categorizing speech disorders based on educational and psychological factors rather than functional impairments. While this approach was beneficial in addressing learning difficulties and behavioral aspects, it lacked a precise methodology for evaluating speech dysfunctions at a clinical level. The transition to a functionality-based classification provides a more comprehensive understanding of speech disorders, ensuring that therapy interventions are aligned with a child's actual communicative abilities rather than solely their educational performance (Johnston & Ng, 2018).

Role of Functionality Assessment in Organizing and Conducting Speech Therapy Interventions

Functionality assessment is essential for organizing and conducting effective speech therapy interventions. The WHO ICF framework introduces a holistic approach, evaluating speech impairments in terms of environmental, psychological, and physical factors. In Armenia, the adoption of

functionality-based assessments ensures that speech therapy services address the impairment and the child's ability to communicate in daily life. This approach allows specialists to develop ILPs considering speech and overall functional development (World Health Organization, 2007).

Identification and Provision of Speech Therapy Services Based on Functionality Assessment

Results

A critical aspect of functionality-based assessments is the identification and provision of speech therapy services according to a child's specific needs. Assessments based on the ICF model help professionals determine the level of impairment, participation restrictions, and necessary accommodations for each child. In Armenia, integrating this model into territorial pedagogical-psychological support centers would streamline the referral and intervention process, ensuring that children receive timely and appropriate support. However, limited awareness and training among specialists remain significant barriers to fully implementing functionality-based speech therapy services (Fornari et al., 2022).

RECOMMENDATIONS FOR FUTURE RESEARCH AND PRACTICE

1. **Enhancing Training Programs** – Increased training sessions should be implemented for speech therapists, educators, and pedagogical-psychological support teams to ensure a uniform understanding of speech therapy assessments and intervention planning (Creswell & Poth, 2018).
2. **Developing hands-on workshops** to enable specialists to apply functional assessment criteria.
3. **Standardization of Documentation Processes** – The documentation and monitoring of speech therapy interventions should follow structured protocols to enhance transparency and accessibility (World Health Organization, 2007).
4. **Strengthening Parent Engagement** – The role of parents in IEP development and therapy planning should be reinforced through collaborative workshops and structured reporting methods (Johnston & Ng, 2018).

CONCLUSION

The study underscores the importance of developing and refining speech therapy assessment models to improve service accessibility. The proposed speech therapy model allows for a more targeted service provision based on functional classification criteria. The research findings highlight the need to standardize speech therapy assessment methodologies by international classifications, particularly the WHO ICF framework. The study recommends further research to enhance the effectiveness of speech

therapy assessments in Armenia, ensuring greater inclusion and equity in education for children with speech disorders.

At the same time, this study's findings highlight the critical need for further training and professional development in the field of speech therapy assessment and intervention. While speech therapists, public school teachers, pedagogical-psychological support specialists, and students possess some knowledge and practical skills, the limited awareness of functional assessment criteria and their application in speech therapy service provision suggests gaps in expertise that may impact the effectiveness of therapy interventions.

To ensure standardized, evidence-based, and effective speech therapy services, it is essential to expand professional development programs for speech therapists, educators, and pedagogical-psychological support specialists to enhance their competency in functional assessment-based therapy models. Besides, structured training modules on the WHO ICF framework should be integrated into the curriculum for future speech therapists and special education professionals, and practical workshops and hands-on experience opportunities should be developed, enabling specialists to apply functional assessment criteria in real-world settings. Strengthening interdisciplinary collaboration between speech therapists, educators, and healthcare professionals is crucial to ensure a holistic approach to assessment and intervention.

By addressing these training needs, professionals in speech therapy and special education will be better equipped to deliver high-quality, individualized interventions, ultimately improving educational and developmental outcomes for children with speech disorders.

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ADAPTATION ISSUES OF CHILDREN WITH COCHLEAR IMPLANTS WITHIN THE FRAMEWORK OF GENERAL INCLUSIVE EDUCATION IN ARMENIA

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ABSTRACT

This article provides comprehensive information about hearing impairments, specialized methods for hearing restoration, such as cochlear implantation, as well as the goals, timing, stages, and age-specific features of auditory and speech rehabilitation after cochlear implantation.

It also highlights the factors that contribute to and hinder the social adaptation of children with cochlear implants (CI). The article discusses challenges in preschool and school education for children with CI, such as the lack of special technical tools to enhance the quality of education, insufficient awareness among educators and teachers regarding communication with children with CI, and the psychological aspects of their interactions with peers.

Keywords: *hearing impairments, cochlear implantation, auditory and speech rehabilitation, preschool education, inclusive schools, special technical means, individual education plan, psychological-pedagogical commission, regional center for psychological-pedagogical support.*

INTRODUCTION

Hearing is a crucial sense organ that plays a role in intellectual, emotional, and social development. Auditory perception results from the joint activities of the receptive auditory system and the brain's analytical and integrative systems. As the final link in the acoustic communication chain, hearing, along with the behavior it influences, is controlled and coordinated by many complex brain mechanisms (National Institute on Deafness and Other Communication Disorders, 2021; Vartanyan, 1981).

A global assessment of hearing impairment prevalence, published by WHO in 2012, reported that 360 million people (5.3% of the world's population) suffer from hearing loss, including 328 million adults (183 million men and 145 million women) and 32 million children (WHO, 2012). Hearing loss can result from inflammatory and non-inflammatory diseases of the middle ear (e.g., exudative otitis media, chronic suppurative otitis media, otosclerosis), the use of ototoxic drugs (e.g., antibiotics from

the aminoglycoside group, loop diuretics, anticancer drugs), poor environmental conditions, infectious diseases such as measles, rubella, scarlet fever, and meningitis, exposure to loud noise and acoustic trauma, various vascular diseases leading to impaired microcirculation in the inner ear, pregnancy and birth complications (e.g., preeclampsia, hyperbilirubinemia, asphyxia, birth injuries, prematurity), and hereditary factors (Koroleva, 2012; Zabirowa, 2012; Markova, Polyakov & Kunelskaya, 2008; Rosenblum, 1980).

In Armenia, 1 in 1,000 newborns is diagnosed with profound hearing loss, and by the age of five, two additional cases per 1,000 occur.

THEORETICAL BACKGROUND

There are different classifications of hearing impairments based on various criteria:

1. Depending on the causal factor:
 - Hereditary hearing impairments, which are genetically determined (monogenic and multifactorial);
 - Congenital hearing impairments;
 - Acquired hearing impairments (resulting from diseases, injuries, or harmful effects).
2. By type of inheritance:
 - Autosomal inheritance (autosomal recessive and autosomal dominant types);
 - X-linked inheritance;
 - Mitochondrial inheritance;
 - Combined inheritance.
3. By the mechanism of sound signal processing:
 - Conductive hearing loss (caused by an impaired sound conduction mechanism);
 - Sensorineural hearing loss (caused by an impaired sound perception mechanism);
 - Mixed hearing loss (involving both impaired sound conduction and perception in one ear).
4. By location of impairment in the auditory system:
 - Peripheral hearing impairments (damage to the outer, middle, or inner ear, neurons of the spiral ganglion, or auditory nerve);
 - Central hearing impairments (damage to the subcortical and cortical centers of the auditory system).
5. Depending on the location of the damage:
 - Unilateral hearing impairment (affecting only one ear);
 - Bilateral hearing impairment (affecting both ears).

6. By the dynamics of hearing loss:
 - Progressive (thresholds increase by 10 dB or more at four frequencies from 0.5 to 4 kHz over five years);
 - Stable.
7. By symmetry of hearing loss:
 - Symmetrical;
 - Asymmetrical (threshold differences of more than 15 dB between ears at two or more frequencies).
8. Depending on the onset period of the disease:
 - Congenital;
 - Prelingual (occurs before speech development);
 - Post-lingual (occurs after speech development).
9. By degree of severity:
 - Domestic classification of hearing loss (hearing loss for tones at 0.5–2 kHz):
 - Mild hearing loss: average loss does not exceed 50 dB (perception of conversational speech at more than 1–2 meters, whispering speech near the ear);
 - Moderate hearing loss: average loss from 50 to 70 dB (perception of conversational speech up to 1 meter, whispering speech not perceived);
 - Severe hearing loss: average loss from 70 to 85 dB (perception of conversational speech is difficult, not always clearly perceived near the ear).
 - International classification of hearing loss degrees (assessed in the speech frequency range of 0.5–4 kHz):
 - Mild: average hearing loss from 26 to 40 dB (perception of conversational speech at 6–3 meters, whispering speech at 2 meters near the ear);
 - Moderate: average hearing loss from 41 to 55 dB (perception of conversational speech at 3 meters near the ear, whispering speech not perceived);
 - Moderate to severe: average hearing loss from 56 to 70 dB (perception of loud speech near the ear);
 - Severe: average hearing loss from 71 to 90 dB (perception of shouting near the ear);
 - Profound: average hearing loss over 91 dB (speech is not perceived).
 - International classification proposed by WHO (2008) (assessed in the speech frequency range of 0.5–4 kHz):
 - Normal hearing: average hearing loss up to 25 dB (no speech perception problems or very

minor issues, perception of whispering speech);

- Mild: average hearing loss from 26 to 40 dB (distinguishing and repeating words spoken with conversational speech at a distance of 1 meter);
- Moderate: average hearing loss from 41 to 60 dB (distinguishing and repeating words spoken with loud speech at a distance of 1 meter);
- Severe: average hearing loss from 61 to 80 dB (perception of shouting near the ear);
- Profound, including deafness: average hearing loss over 81 dB (speech is not perceived).

(National Institute on Deafness and Other Communication Disorders, 2021; Shcherbakova, Yanov, Kuzovkov, Megrelishvili, 2014).

HISTORICAL REVIEW OF COCHLEAR IMPLANTATION

It is well known that hearing aids are widely used to improve auditory perception in children and adults with various hearing impairments. However, hearing aids do not always lead to significant improvement in speech perception for everyone. Due to a number of technical, physiological, and pathophysiological reasons, hearing aids provide minimal or no improvement in speech perception for individuals with severe sensorineural hearing loss and deafness (Tavora-Vieira & Rajan, 2020). Recent scientific advancements and the use of cutting-edge technology have made it possible to develop a new method to improve auditory perception in such patients - the method of multichannel cochlear implantation (CI). CI generally refers to the implantation of electrode systems into the inner ear to restore auditory sensation through direct electrical stimulation of the auditory nerve fibers.

The idea of assisting people with hearing impairments through CI emerged around 40 years ago in France. During surgery on the middle ear of a hearing-impaired person, an electrode was accidentally placed near the cochlea, connected to a power source, and the patient began to hear better. Doctors investigated this phenomenon, leading to the development of a new approach that improves speech perception for deaf and hard-of-hearing people (Carlson, et. al., 2020; Lorens, Polak, Piotrowska & Skarzynski, 2008; Litovsky & Parkinson, 2006; Lindbaek & Harris, 2005; Yanov, 2005; Mens, 2003; Trautwein, Sininger & Nelson, 2000).

In the Soviet Union, the first operation to implant a domestic cochlear device was performed in 1982, and since 1990, doctors at the All-Russian Scientific Center of Audiology and Hearing Aids of the Ministry of Health of the Russian Federation, led by Tavartkiladze, in cooperation with specialists from the company “Cochlear” (Germany), prepared and performed the first operation to implant a 22-channel Nucleos electrode. Since then, doctors at the center have been performing several such operations annually.

In 1995, the center's doctors developed and published the “Guidelines for Cochlear Implantation”. Today, other medical institutions in Moscow and St. Petersburg also perform such surgeries on both children and adults.

Sensorineural hearing loss is typically caused by damage to the inner ear, particularly the hair cells. However, despite significant damage to the sensory cells, most such patients retain auditory nerve fibers. These fibers, when directly stimulated by electrical current, are capable of sending signals to the brain, creating auditory sensations. This is the principle on which the CI operates - it essentially serves as an artificial inner ear.

Currently, tens of thousands of people worldwide use CI. Thus, cochlear implantation is gradually becoming a viable solution for hearing aids in individuals with severe sensorineural hearing loss and profound deafness.

The cochlear implant provides:

1. Restoration of auditory perception thresholds to 30-40 dB relative to normal hearing thresholds;
2. Significant improvement in the perception of everyday environmental sounds, such as knocking on the door, doorbells, engine sounds, car horns, phone ringing, dog barking, background music, etc.;
3. A psychological breakthrough into the world of sounds. The subjective loudness of everyday sounds perceived through the implant typically far exceeds that of similar sounds perceived even through optimally fitted hearing aids. As a result, deaf and hard-of-hearing individuals describe their experience as “I started to hear”;
4. The vast majority of those who undergo the operation improve their ability to understand others through a combination of enhanced hearing ability and lip reading.

The primary indications for CI are bilateral profound sensorineural deafness, with an average hearing perception threshold at 500 Hz, 1000 Hz, and 2000 Hz above 110 dB, or a lack of significant improvement in speech perception with hearing aids in cases of severe bilateral sensorineural hearing loss, with an average hearing threshold above 90 dB.

The age range for CI is quite broad: the minimum age is 1-2 years, which is determined by the development of the cochlea to the minimally required size. The maximum age is limited by the individual's overall health and the need for a long (several years, at least more than a year) rehabilitation period.

In addition to the above, the following conditions must also be met:

1. The presence of intact auditory nerve fibers;

2. The absence of cochlear obliteration;
3. The absence of retro cochlear pathology;
4. The absence of serious comorbid somatic diseases;
5. No cognitive impairments in the patient;
6. The absence of pathologies in the brain's cortical or subcortical structures;
7. No psychiatric disorders;
8. Strong support from parents (for children) or relatives (for adults), and their readiness for

a long post-operative rehabilitation period involving sessions with audiologists and deaf education specialists.

Another criterion for CI is the effectiveness of hearing aids. If a person can recognize around 30-40% of words with a hearing aid, CI is only recommended if the prognosis is excellent. CI is confidently recommended when the individual correctly recognizes fewer than 5% of words and there are no contraindications.

To determine the potential effectiveness of cochlear implantation for an individual, one cannot rely solely on the average hearing threshold.

Studies have shown that neither the average threshold, the etiology of deafness, nor the age at which surgery is performed are decisive factors in post-operative speech comprehension for implant recipients. However, there is a strong correlation between the duration of deafness (from the time of hearing loss to implantation) and the results of implantation: the shorter the period, the faster the patient's progress in auditory training. Another important factor is whether deafness occurred before or after the development of speech. In the latter case, speech recognition progress after implantation is faster and more significant.

These two factors are so significant for predicting the results of CI that, for a long time, only recently deafened individuals whose deafness occurred after speech development were selected for implantation. Indeed, the prognosis for such patients is the most favorable.

CI implantation has been performed in Armenia since 2004 at the Erebouni Medical Center.

REHABILITATION

Auditory and Speech Rehabilitation After CI is a process aimed at restoring hearing and developing speech in people with profound hearing impairments who have received a CI system. CI allows a person with hearing loss to perceive sounds by converting sound signals into electrical impulses that stimulate the auditory nerve. However, the implantation itself is only the first step toward full auditory and speech integration. The rehabilitation stage, which helps patients adapt to their new hearing

abilities and learn how to use them, is equally important.

The main goals of auditory and speech rehabilitation after CI are:

1. **Learning to perceive sounds.** The patient must learn to recognize and differentiate environmental sounds, such as speech, music, and noise.
2. **Development of speech skills.** For those who lost their hearing before acquiring speech (prelingually deaf), it is crucial to learn to understand and produce words and phrases.
3. **Improving quality of life.** Restoring hearing and speech enables a person to integrate into society, communicate freely, and lead an active lifestyle.

The duration and stages of auditory and speech rehabilitation may vary depending on the patient's age, the time of implant placement, and prior hearing experience. Rehabilitation typically occurs in several phases:

1. **Implant activation period (4 weeks after surgery).** During this time, the CI is connected and adjusted, and sound signals begin stimulating the auditory nerve. However, sound perception remains unclear and requires adaptation.
2. **Adaptation and initial training period (first 6 months).** During this time, the patient learns to distinguish sounds. Children and adults with different hearing experiences adapt differently: children learn to perceive and pronounce new sounds, while adults with hearing loss recover familiar sounds.
3. **Active rehabilitation period (from 6 months to several years).** This is a period of intensive work with speech therapists and other professionals aimed at developing hearing and speech. The duration depends on the patient's initial condition: it may take several years for children, while adults usually progress faster.
4. **Final stage (ongoing support).** Even after completing the main rehabilitation, patients continue exercises to maintain their hearing and improve speech skills.

Age-specific features of rehabilitation

- **Children.** Auditory and speech rehabilitation in children, especially those born with congenital deafness, requires a special approach. The earlier the child receives the implant (the optimal age is before 1 year), the faster and more effective the hearing and speech training will be. At this age, the brain is most plastic, and the ability to adapt is greater. Early intervention allows children to learn to recognize sounds and develop speech at nearly the level of their peers.

- **Adults.** Rehabilitation in adults who lost their hearing later in life usually progresses faster since they already have established auditory and speech skills. They relearn familiar sounds. However, for adults with congenital deafness or those who lost hearing at an early age, the process can be longer and

more demanding. In such cases, CI is considered less effective (Lenarz, James, Cuda, & European Cochlear Implant Users, 2020).

Auditory and speech rehabilitation after CI is a lengthy but essential process requiring patience, effort, and cooperation with qualified specialists. The success of rehabilitation largely depends on the patient's age, pre-implantation hearing condition, and the quality of the rehabilitation itself. Early CI and systematic work on developing hearing and speech allow patients to effectively adapt to the world of sounds and achieve a high degree of social integration.

The goal of rehabilitation is to achieve a level of hearing and communication that enables patients to integrate freely into society. Auditory and speech rehabilitation also includes the development of gross and fine motor skills, perception of the surrounding world, attention, memory, thinking, and emotional and volitional spheres.

In Armenia, for over 20 years, the "Mutual Assistance Center" has been conducting auditory and speech rehabilitation for children with CI. It is the only certified rehabilitation center whose specialists work using the Harutyunyan's method. This method has provided optimal results in auditory and speech development for cochlear implant patients for over two decades.

The attendance of children with cochlear implants in preschool institutions plays a significant role in their development and social integration. CI gives children with severe hearing loss the opportunity to hear sounds, but successful use of these opportunities depends not only on rehabilitation but also on creating special conditions in the environment where the child develops and learns. Attending kindergartens is one of the key stages in the process of adapting such children to the world of sounds, speech, and communication.

One of the main tasks for children with CI in preschool institutions is creating a rich linguistic environment. It is important that the child is surrounded by speech, as this allows for more active development of auditory perception and speech communication skills. In kindergarten, children constantly encounter conversational speech from peers and educators, which stimulates their auditory development and improves their understanding and reproduction of sounds.

Preschool institutions should create favorable conditions for children with CI, including:

- minimizing noise in the group, so the child can better perceive speech and orient themselves in the sound environment.
- using visual cues to support understanding of spoken words.
- special programs and methods aimed at developing auditory and speech skills and educating children with hearing impairments.

Socialization is another important aspect of attending preschool for children with CI. In

kindergartens, children learn to interact with peers, work in groups, and share emotions and impressions. A key goal is for children with implants to fully participate in play and educational activities, promoting their emotional and social development.

Through constant interaction with other children, a child not only learns to perceive speech but also understands it in various contexts, which is essential for successful integration into society. In group work and play, the child acquires communication skills, develops self-confidence, and the ability to express their thoughts and desires.

Despite the many advantages of attending preschool institutions, children with CI face several challenges:

1. **Adaptation to noise.** The background noise level in a kindergarten can be quite high, making it difficult to perceive speech through the implant. This can lead to fatigue and decreased concentration in the child.
2. **Need for an individual approach.** Children with implants often require additional support from educators. This requires educators to have special knowledge and skills in working with children with hearing impairments. It is important that educators understand the characteristics of these children and can adapt teaching and communication methods.
3. **Psychological adaptation.** The socialization process can be difficult for children with CI, especially if they feel “different” due to the need to wear a device. This can affect their self-esteem and interaction with other children.
4. **Lack of experience among peers in interacting with children with implants.** Some children may not immediately understand what a CI is, which can lead to misunderstandings or even the isolation of the child with the implant. It is important to explain to children that the implant helps their peer hear and to teach them to respect others' differences.
5. **Insufficient knowledge of educators in technical matters (handling the speech processor, replacing batteries, etc.).**
6. **Insufficient awareness of educators regarding communication with children with CI (use of gestures or exaggerated speech).**

EDUCATION AND SOCIALIZATION

Attending preschool institutions by children with CI is an important stage in their development, socialization, and integration into society. Creating a linguistic environment and educator support play a key role in successfully adapting these children. However, difficulties related to speech perception in noisy environments and psychological barriers require special attention from both parents and educators.

By overcoming these obstacles, children with implants can fully participate in the lives of their peers and gain the necessary skills for further development.

Education in Inclusive Schools. Children with hearing impairments who have undergone CI are considered individuals requiring special educational conditions. A person in need of special educational conditions is defined as someone who faces learning difficulties due to issues with speech and language, communication, hearing, vision, intellectual (mental), emotional, behavioral, motor, or other problems, requiring special conditions for mastering the general education curriculum.

Most children with CI who have completed rehabilitation are typically ready to attend inclusive schools by the time they begin school. Readiness assessments for school are conducted by the school, a psycho-pedagogical commission, and/or a regional center for psycho-pedagogical support. The school submits a request to the psycho-pedagogical commission, after which an evaluation team is formed. The team consists of at least two educators (a special education teacher and a social worker) and one psychologist from the regional center for psycho-pedagogical support. If necessary, other teachers and specialists may be involved. The assessment is carried out in the first, fourth, and ninth grades, as well as on request from the school, if needed.

The assessment process consists of two stages:

- Conversations with teachers and parents.
- Comprehensive assessment of the child using a set of standards appropriate for each age group.

Based on the results, the evaluation team provides a comprehensive description of the child and determines the level of support required. The assessment of the child's educational needs is conducted free of charge. If a student is assessed and recognized as having special educational and developmental needs, an **Individual Learning Plan (ILP)** is developed. This document is based on the national and subject-specific educational standards, the curriculum, and the need for special learning conditions. It outlines the annual goals, objectives, and actions needed to achieve them (including support services).

The development of an ILP is a collaborative process involving the student, the parent or legal representative, the student's teachers, and specialists providing educational and psychological support. The ILP is developed for one academic year. If the educational institution lacks specialists to provide necessary support, they are invited from the regional center for pedagogical and psychological support serving the school.

Special Technical Tools for Improving the Quality of Education for Children with CI. To enhance the quality of education for children with cochlear implants (CI) in educational institutions, particularly during preschool and school activities, special technical tools are used to help children better perceive speech and sounds. These devices and technologies adapt the auditory environment and provide

clearer speech perception in noisy or acoustically challenging conditions. Below are some of the most effective technical solutions:

1. **FM Systems (Frequency Modulation Systems)** – One of the most popular and widely used tools to improve speech perception for children with CI in the classroom or group setting.

- **How it works:** The teacher or adult wears a microphone that transmits their voice directly to the child's CI via a radio frequency signal. This reduces the impact of background noise and reverberation, allowing the child to focus better on the teacher's speech.

- **Advantages:** These systems significantly improve speech understanding at a distance and in group work situations where there are many background sounds.

2. **Digital Microphones and Sound Amplification Systems** – These can be used alongside audio systems to transmit sound to the child's device, improving the quality and clarity of speech.

- **Application:** These microphones can be used in classrooms and groups so that all spoken material is clearly audible to children with CI.

- **Advantages:** The teacher or speaker doesn't need to raise their voice, and their speech is transmitted clearly and directly to the child's device, reducing acoustic distortions.

3. **Interactive Whiteboards with Audio Support and Multimedia Systems** – These can be helpful for children with CI as they combine visual information with speech. Visual aids (texts, images, videos) help compensate for potential gaps in auditory perception that may still occur even with a CI. Children can follow the material easily, receiving information through multiple channels simultaneously. (These are **not yet used in Armenia**.)

4. **Noise-Cancelling Systems** – These can be used to reduce the level of background noise in classrooms or group settings, creating better acoustic conditions for speech perception. Reducing background noise helps children with CI to understand speech better, especially in large rooms or groups with many children. (These are **not yet used in Armenia**.)

5. **Speech-to-Text Software** – Programs that convert spoken language into text in real time can be helpful for children with CI, especially if they struggle with understanding speech in noisy environments. These systems act like subtitles, providing a textual version of what is said. Children can read and listen simultaneously, improving material comprehension and overcoming potential hearing difficulties in challenging acoustic environments. (These are **not yet used in Armenia**.)

6. **Speech Rehabilitation Applications** – Specialized programs and apps designed for speech rehabilitation and the development of auditory skills in children with CI are available. These apps help train sound perception, speech skills, and auditory memory. The programs can be integrated into the educational process or used as additional tools for home practice. Here are some popular apps for

speech rehabilitation for children with cochlear implants:

- **Lingraphica** – A series of apps designed for speech therapy and rehabilitation, supporting the development of auditory and speech skills.
- **Cochlear CoPilot** – An app from Cochlear that includes programs for speech rehabilitation and training to improve hearing and speech.
- **Auditory Workout** – An app for children developed by a speech therapist that helps improve auditory perception, attention, and concentration.
- **SoundTouch Interactive** – An app with interactive tasks to enhance auditory perception and language development.
- **Hearing First** – A platform with educational materials and apps for children with CI, focused on speech and auditory development.

Unfortunately, **these apps do not support the Armenian language and are not used in Armenia.**

These technical tools play a key role in providing quality education for children with cochlear implants. They help overcome barriers in speech perception, improve conditions for speech and hearing rehabilitation, and promote the successful integration of children into the educational environment.

CONCLUSION

Cochlear implantation is a life-changing technology that restores hearing in individuals with severe to profound hearing loss. However, successful auditory and speech integration depends on comprehensive rehabilitation, educational support, and assistive technologies.

Key Challenges and Recommendations:

1. Limited use of assistive technologies – Armenian schools lack advanced tools like noise-canceling systems and speech-to-text software. Government support is needed to integrate these technologies into the education system.
2. Insufficient technical training for educators – Many teachers lack knowledge about CI devices. Professional development programs should be introduced.
3. Need for specialized communication training – Teachers and caregivers should be trained in gesture support, speech modulation, and nonverbal communication to enhance interaction with CI users.
4. Psychological adaptation – Children with CIs may experience social stigma or self-esteem issues. Schools should promote awareness programs to foster peer understanding and inclusivity.

Providing inclusive education for children with CIs requires a multi-faceted approach,

combining modern technology, professional training, and social support. Government intervention and professional community engagement are crucial for enhancing the quality of education and overall well-being of CI users in Armenia.

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SCHOOL BULLYING AS A CONTRIBUTOR TO STUDENTS' MENTAL HEALTH ISSUES

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ABSTRACT

The article examines school bullying as a serious socio-psychological problem that is widespread among students all over the world and leads to serious consequences for their mental health and academic motivation. In Armenia, bullying is also a pressing issue, but there is no legislative regulation in this area. The study seeks to identify effective strategies for assisting students experiencing bullying. Bullying is defined as a form of psychological violence that includes constant bullying and humiliation. Research indicates its negative impact on the psycho-emotional state of the victim, leading to anxiety, depression, and low self-esteem, as well as on the educational process, reducing motivation and academic performance. The article describes specific cases of bullying, emphasizing the need for comprehensive socio-psychological support. The authors offer various methods and psychotherapeutic approaches to assist victims of bullying, including working with self-esteem, developing confident behavior, and strengthening mental resilience.

Keywords: *school bullying, psychological violence, social-emotional learning, anxiety, depression, and low self-esteem, mental health.*

INTRODUCTION

School bullying is a widespread socio-psychological issue that affects students globally, causing profound emotional distress and long-term psychological consequences. It manifests in various forms, including verbal, physical, and psychological aggression, significantly impacting the mental health, self-esteem, and academic success of victims. Research consistently highlights the detrimental effects of bullying, which can lead to anxiety disorders, depression, and social isolation, as well as a decline in academic motivation and overall school performance.

In Armenia, bullying remains a serious concern, yet there is no specific legislative framework addressing this issue. The absence of structured legal and institutional mechanisms makes it challenging

to effectively identify, prevent, and intervene in bullying cases. While awareness of the problem is growing, there is still a lack of comprehensive strategies to support students experiencing bullying and to foster a safer school environment.

Given the critical nature of this issue, this article aims to explore effective methods and intervention strategies for assisting students who face bullying. It examines the psychological impact of bullying, identifies key risk factors, and provides an overview of socio-psychological support mechanisms that can be implemented in schools. The discussion includes specific cases of bullying, emphasizing the need for preventive programs, teacher training, and psychological interventions to protect and support affected students.

By analyzing existing research and best practices, this study seeks to contribute to the development of practical recommendations that can help mitigate bullying in Armenian schools. The proposed strategies focus on enhancing students' psychological resilience, promoting assertive behavior, and strengthening emotional well-being to empower victims and reduce the prevalence of bullying in educational institutions.

Taking into account the importance of the problem the aim of the current research is to identify the effective ways of social-psychological support for students who are bullied at school.

LITERATURE REVIEW

The problem of bullying in Republic of Armenia needs strong juridical regulation and professional support. Therefore, we have not yet comprehensively revealed the scientific bases for assessing bullying as a mental health risk, particularly when considering it as an object of social-psychological support. In particular, there are few studies that focus on combining individual and team efforts to overcome the phenomenon of bullying and its negative consequences.

According to another definition, bullying is conscious, prolonged violence by bullies against the victim (Aver'janov, 2013 p. 3). Regrettably, bullying in Republic of Armenia is pervasive in public educational institutions, targeting students based on their physical appearance, socioeconomic status, and other personal characteristics. There is a noticeable gap between the prevalence of bullying and students' willingness to acknowledge it as a problem. Thus, in the course of our psychological work, we also often meet visitors who are no longer in school but state that they were bullied during their school years and have a traumatic experience and memory. If the traumatic experience remains unresolved, it can lead to insecure social behavior and negatively impact the person's mental health. These effects can persist for a long time and reduce the quality of life of those affected.

Professional literature extensively covers school bullying as a socio-psychological problem.

Research data underscores the ubiquitous nature of school bullying, impacting one in three students globally. Studies show that bullying affects almost 32% of adolescents aged 13–15 in different regions, leading to impaired mental health and reduced motivation to learn (UNESCO, 2017). In 2017, a survey across all regions of the Republic of Armenia and Yerevan revealed that 84% of students expressed a desire for Armenia to enhance its efforts to prevent bullying, with 38% reporting instances of physical bullying at school.

According to attachment theory (Bowlby, 1982), Learners who have had a traumatic experience have difficulty adjusting to new social groups, often show high levels of anxiety, and may feel insecure around peers. Bullying disrupts the learner's fundamental need for security and acceptance, manifesting in their behavior and self-expression (Bowlby, 1982). Bullying has a negative impact on the student's psycho-emotional well-being. Bullied students experience anxiety, depression, low self-esteem, social isolation, and anxiety. These effects can persist for a long time and reduce the quality of life of those affected.

Research shows that bullied students are 1.5 to 2 times more likely to develop anxiety disorders and 2 to 3 times more likely to develop depression (Hinduja & Patchin, 2021; Espelage & Hong, 2020). In the long term, bullying can lead to reduced academic progress. Modern research (Aver'janov, 2013 p. 45-50) proves that the victims of bullying are those students who have academic failures, behavioral disorders, or weight disorders, come from socially disadvantaged families, and need special educational conditions. Students with excellent progress are also not exempt from bullying.

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Bullying can lead to aggressive behavior in both victims and bullies. Children who have been bullied themselves may engage in aggression toward others, which then becomes a cyclical problem that affects their social relationships (Zych, Farrington & Ttofi, 2019).

Bullying has a significant impact on the student's learning process. Many students experience decreased academic motivation, frequent absences from class, and decreased cognitive function due to bullying (Swearer, Wang, Berry & Myers, 2019). In the long term, bullying can lead to reduced academic progress. Thus, in the case of early identification and recognition of bullying, as well as professionally literate and appropriate psychological intervention, we will have a healthier educational environment, where students will feel protected and psychologically harmonious.

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also not exempt from bullying.

Despite psychologists frequently discussing the manifestations of bullying among students, they have yet to develop a comprehensive methodological strategy to prevent bullying.

METHODOLOGY

This study employs a mixed-method research design, integrating elements of action research and case study analysis to explore the psychological and social impact of school bullying. By combining qualitative and quantitative approaches, the research aims to gain a comprehensive understanding of bullying dynamics, its effects on students, and effective intervention strategies.

To collect data, the study utilizes observational methods, structured psychological interviews, and projective techniques to assess students' emotional and cognitive responses to bullying. The "Color Metaphors Methodology" (Sargsyan, 2007, p. 162) was implemented to reveal subconscious attitudes and emotional associations of bullied students toward their peers and classroom environment. This technique, widely used in psychological diagnostics, enables the assessment of underlying emotions, fears, and perceptions of students experiencing bullying.

Additionally, we applied the "Bullying Risk Questionnaire" (Bochaver et al., 2015) to systematically identify students at risk of experiencing bullying. This validated psychometric tool helps to quantify bullying exposure levels, assess behavioral indicators of victimization, and detect potential patterns of aggression within school settings. The questionnaire was supplemented with student essays, thematic drawings ("My Class" paintings), and projective storytelling techniques ("Unfinished Tale"), which provided further insight into students' emotional well-being, peer relationships, and perceived social inclusion/exclusion.

To better understand the psychological impact and coping mechanisms of bullied students, we conducted case study analyses of individual students (grades 3–9) who sought psychological support. These cases were selected based on common behavioral and emotional symptoms observed in bullying victims, including anxiety, depression, social withdrawal, and academic disengagement (Smith & Brain, 2000; Olweus, 1993). The case studies allow for an in-depth examination of bullying manifestations, emphasizing the role of self-perception, peer dynamics, and school climate in shaping students' experiences.

By integrating qualitative observations, psychometric assessments, and individual case analyses, this study provides a holistic perspective on school bullying, emphasizing the need for early detection, psychological intervention, and comprehensive anti-bullying policies within the educational system.

RESULTS AND DISCUSSION

Case 1.

H.V.'s child is 8 years old, studying in the 3rd grade. The mother turned to my psychological help, complaining that recently there have been significant negative changes in the child's behavior, anger, negativism, and emotional instability. In particular, the child refuses to attend school; the educational motivation has decreased sharply. The child has lost his previous vitality, often has mood swings, and shows insecure behavior. We observe social isolation in the child's interactions, which manifests as a refusal to interact with peers. We carried out psychic and psychotherapeutic work with the child for a duration of 6 weeks. We used observation and psychological interview methods. It became clear from psychological conversations that V. avoids attending physical education classes in particular. The child lacks friends in class and experiences social isolation. Pictorial methods also confirmed the child's deep feeling of insecurity. In order to find out the nature of the child's emotional-behavioral, motivational, and interpersonal relations, we used the following tools: The child depicted himself as small and lonely, a reflection of his low self-esteem and social isolation from his classmates. The child first drew and then erased the boy in the class who bullied him. This indicates that the child perceives danger and instinctively removes the potential threat (Lomakina, 2010). The study results revealed that peers verbally and physically bullied the child, and they excluded him from team games. We carried out fairy-tale therapeutic games and exercises to raise the child's psychological resources and restore the feeling of psychological security (Vardanyan, 2022 p. 21-27). From the results of psychological observation, conversation (Arzoumanyanyan, Mkrtchyan & Sargsyan, 2002 page 10), and the use of projective methods (Shapar' & Shapar', 2006), we assume that in the classroom the child appears in situations of psychological violence and social isolation from the classroom. The child feels unprotected and lacks social support. The child exhibits a strong sense of insult and resentment, leading us to believe that further psychological work is necessary. Thus, summarizing the results of psychological works we have carried out, we conclude that the child's rejection by the class and regular harassment towards him disrupted the latter's emotional well-being, which is manifested in the child's behavior by social distance, anger, and negativism. In order to make the obtained conclusion complete and complex, we consider it expedient to conduct psychological research work with students studying in the classroom and teachers teaching in the classroom.

Case 2.

The father of a 12-year-old boy, (D.B.), filed an application, expressing his dissatisfaction over the boy's insistence on visiting the school and seeing his classmates, whom he claims regularly annoy him. However, the father decides to turn to a psychologist so that, according to his words, "the child's

self-esteem will increase," "he will be able to manage himself in conflict situations," and "not to take his father to school for every difficult situation." D. B. is upset with his father because, according to his comment, "at least father should solve this issue," because he mentioned that the older brothers of the boys in the class come to school "see" them and no longer bother that teenager, and his father had brought him to a psychologist. The psychological interview revealed that the boy is plagued with anxious thoughts, such as "What if he stays alone in the classroom?" and "What if he gets hit?" She constantly fears losing her "supporters" in the classroom and regularly brings sweets, juice, or food for them, fearing that if they don't communicate with her, she will be left alone. The fear of being alone in the classroom forces the teenager to become a henchman of his peers. We conclude that the teenager frequently experiences indirect bullying. In the "My class" picture, the teenager drew his classmates from behind, a gesture that suggests social and psychological alienation. The "Color Metaphor" methodology yielded a qualitative review of the results (Sargsyan, 2007 p. 162).

Case 3.

(A.E.) When the girl approached me at the age of 17, she revealed that during her middle school years, specifically her teenage years, boys in her class regularly bullied her due to her weight and appearance. He sought psychological assistance due to conflicts he was experiencing with family members, particularly his grandmother. She harbored a desire to transition into a different gender; she faced criticism from everyone for dressing in boy's clothes and donning boy's hats; she struggled to envision herself as a girl, and she even exhibited aggression when referred to as "girl dear." She was no longer overweight, but she harbored a dismissive attitude towards boys who made fun of her, based on the flawed belief that "boys only harass and degrade girls." His father left the family a long time ago, and he lived with his mother and grandmother. This primary trauma was compounded by being bullied by boys his age, which led him to think inadequately. Once he transforms into a boy, he will no longer face ridicule from other boys. She had a basic belief that "all women are weak beings and cannot protect themselves." Thus, the traumatic experiences in the visitor's life are connected with the difficult history of the abusive treatment by the opposite sex, the first object of love, the abandonment of his mother by his father, and leaving him alone. Therefore, we consider denying one's gender identity as a manifestation of the defense mechanism of ostracism. In this case, we established a positive relationship with the system of "self" ideas, cognitive structures, defense mechanisms, as well as self-knowledge and self-acceptance. Specifically, we employed the "self-portrait" methodology, the psychological exercise "Treat yourself like a loved one," the psychotherapeutic technique "Letter from the Future," the exercise of reconstructing inadequate beliefs, and the "Path of Life" drawing technique (Sargsyan, 2007 p. 148). Thus, the girl overcame the cause of bullying—excess weight—but long-lasting psychological trauma

accompanied her. In order to minimize these and similar cases and to prevent the negative consequences of bullying, we consider it necessary to implement a complex social-emotional support program for teenagers in our schools.

Case 4.

S. E. is a 8-year-old boy. The mother complained that the boy is not confident, does not take the initiative, and acts aggressively in a situation of emotional tension. He avoids going to the yard alone, isolates himself in the classroom, avoids contact with other children during breaks, and refers to their classroom as a "beast house." During the initial conversation, it became evident that the mother had transferred this position to the child. The child suffers from a speech tempo and rhythm disorder, which causes him to stutter, thereby increasing his independence. He is often bullied by his classmates due to his lack of self-confidence and anxiety. Avoids presenting the lesson in class. The mother exerts excessive control over the child's behavior, claiming that if she is not present, the child will face bullying and abuse of trust. It is noteworthy that such a parent's behavior can place the child in a dependent relationship, thereby hindering the child's ability to form relationships with his classmates. It is noteworthy that the child, while writing an essay about the class, focused on the classroom walls and lighting, rather than the relationships among his classmates. Thus, the child's essay focused on the social-emotional distance that exists between him and his classmates. He drew his classmates as beasts and himself as a human, pointing out the difference between him and them. We can interpret the picture, where the child presents himself as the only human among the "animals," as a symbolic reflection of his perceptions and social difficulties (Venger, 2003).

According to the theory of symbolic interactionism, children often use symbols and images to express their experiences and interact with the world (Blumer, 1969). Recognition of similar symbols can be effective for early identification, prevention, and overcoming bullying. From research (Barlett, Gentile & Chew, 2021), it is known that family and community social support reduces the risk of developing anxiety and depression in children affected by bullying. The "Color Metaphor" methodology's results reveal a learner's dissatisfaction with their self-image, demonstrating a correlation between the concept of "I" and concepts such as "failure," "displeasure," "present," "my" responsibilities, "my class," "my classmates," and "threat". Especially those associated with the concept of "threat" are seen in this technique as sources of frustration for basic needs. Thus, the results of the conducted research present new challenges to specialists, who must devise innovative socio-psychological strategies to foster interpersonal relationships among students in public schools. Therefore, we emphasize the need for an integrated approach, including psychologists and teachers.

Implementing suitable methodological guidelines for preventive educational work and

psychological intervention in schools is crucial. It is also known from research (Barlett et al., 2021) that family and community social support reduces the risk of developing anxiety and depression in bullied children. Therefore, as we work with individual cases, we find that these children often reappear in unfavorable environments that jeopardize their mental health, leading us to emphasize systemic reforms in this area. We believe that only in the conditions of social-emotional learning among modern students in schools will the prevention of the phenomenon of bullying become realistic. Students with long-term psycho-traumatic exposure often struggle to identify and express negative emotions like fear or hurt, but Social Emotional Learning (SEL) enables them to do so (Wang & Degol, 2020; SAMHSA, 2014). Even after overcoming them, the persistence of objective factors can greatly increase the risk of re-traumatization. Through SEL, students can learn to better understand others and see them as potential friends rather than threats. SEL helps build confidence in children who feel isolated or under pressure, helping them integrate into their social environment.

CONCLUSION

The findings of this study underscore the pervasiveness and severity of school bullying as a critical risk factor for students' mental health, academic performance, and overall well-being. Even in cases where individual psychological intervention proves effective, bullying remains a deeply entrenched social and psychological issue, requiring comprehensive, systemic solutions beyond individual counseling. The in-depth psychological analysis of the presented cases further reveals that bullying is not an isolated phenomenon but rather a symptom of broader socio-psychological dynamics within the school environment. These findings align with previous research indicating that bullying thrives in settings where aggression is normalized, interpersonal relationships lack emotional support, and school culture does not actively promote inclusion and empathy (Smith & Brain, 2000; Olweus, 1993).

The widespread nature of the objective factors that contribute to bullying indicates that preventative and intervention strategies must be holistic, multidisciplinary, and institutionally supported. This means that tackling school bullying requires a shift from reactive approaches (focused on individual victim support) to proactive and systemic measures that address the root causes of aggression and exclusion in school settings. Educators, psychologists, and policymakers must work collaboratively to develop and implement anti-bullying policies that emphasize social-emotional learning, empathy-building programs, and conflict resolution strategies.

A key target for these interventions should be the creation of a supportive school environment that fosters positive interpersonal relationships among students, teachers, and parents. Research has consistently shown that schools with strong emotional support networks, inclusive classroom practices,

and peer mentorship programs report lower rates of bullying and higher levels of student psychological well-being (Rigby, 2020; Espelage & Swearer, 2004). However, such an environment cannot be cultivated without ensuring the active and meaningful participation of all stakeholders, including students, teachers, school administrators, and parents.

To combat bullying effectively, schools must integrate comprehensive socio-psychological and educational measures, including early detection mechanisms, structured peer support systems, teacher training on identifying and addressing bullying behaviors, and parental involvement in bullying prevention strategies. Beyond individual interventions, schools must prioritize structural and cultural changes that promote respect, emotional intelligence, and social responsibility among students.

Ultimately, bullying prevention should not be viewed as a one-time intervention but as a continuous, evolving process embedded in the broader educational framework. Schools must not only respond to bullying incidents but also actively cultivate an environment where respect, empathy, and emotional well-being are prioritized. Addressing bullying requires a paradigm shift in school culture, where intervention is no longer seen as an external response to a problem but rather as an integral part of the educational system's commitment to fostering healthy and resilient individuals. Only through a cohesive, multi-level approach can we create safer, more inclusive school environments that empower students to thrive emotionally, socially, and academically.

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VOCAL DISTURBANCES ENCOUNTERED AMONG VOICE-RELATED PROFESSIONALS

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ABSTRACT

This article aims to explore the adverse factors associated with voice-related professions and their impact on the vocal apparatus, offering an in-depth analysis of underlying causes, consequences, and symptomatic manifestations. The article thoroughly examines the primary causes of voice disorders frequently encountered by voice-related professionals and discusses specific physical illnesses that may be incompatible with continued professional voice use. A desk review methodology has been employed in this study.

This article provides a comprehensive exploration of the vocal challenges faced by professionals in voice-intensive occupations, emphasizing the importance of vocal preservation and effective preventive practices. It underscores that voice quality significantly influences professional performance across diverse fields including teaching, acting, singing, broadcasting, interpreting, and commanding roles within the military and judiciary.

The study identifies several primary factors contributing to vocal impairments, notably excessive vocal load, incorrect vocal techniques, chronic stress, poor environmental conditions, and detrimental lifestyle habits. Prevention strategies are systematically categorized into primary, secondary, and tertiary levels, emphasizing early identification, intervention, and rehabilitation for sustained vocal health.

Ultimately, the article argues for greater awareness and education on vocal hygiene and advocates the implementation of targeted preventive measures. Maintaining voice quality is presented not merely as a professional necessity but as a critical component for overall health, professional effectiveness, career longevity, and enhanced quality of life among voice professionals.

Keywords: *voice, vocal apparatus, vocal professionals, voice disorders, "voice onset attack," phonasthenia, resiaastheia, clesiaasthenia, dysodia.*

INTRODUCTION

In his pioneering works, the Greek scholar concluded that voice disorders are frequently linked to structural anomalies in the larynx and diseases of the respiratory system. Conversely, speech impairments often arise due to neurological conditions affecting the brain or mobility challenges within the speech articulation organs.

The human voice is an essential tool for individuals engaged in voice-related professions, such as singers, actors, teachers, broadcasters, and call center specialists. However, continuous and intensive use of vocal abilities often subjects these professionals to various negative factors, leading to considerable strain and potential damage to their vocal apparatus. Despite the significance of voice preservation within these vocations, there is still insufficient awareness of the risks and impacts associated with persistent vocal stress.

This article aims to shed light on the adverse factors influencing the vocal apparatus of voice-related professionals, examining in detail the underlying causes, the resultant health conditions, and the characteristic symptoms manifested in such situations. Furthermore, the discussion identifies the primary triggers for vocal disturbances encountered by voice specialists and analyzes specific physiological disorders that can render professionals unable to continue effectively in their voice-dependent careers.

By addressing these critical issues, this article seeks to enhance awareness, encourage preventative measures, and support effective management strategies to safeguard vocal health, thereby enabling voice professionals to sustain long-term career success and well-being.

HISTORICAL AND THEORETICAL OVERVIEW

The voice is one of humankind's innate characteristics. The process of voice modulation spans an extensive period in human life, from the moment of birth until advanced old age. At the moment of birth, an infant announces its arrival into the world through voice - expressed as a cry.

Historically, it is well-documented that the ancient Greek physician Hippocrates (460–370 BCE), often referred to as the "Father of Medicine," was among the first to explore the mechanisms of voice formation through the lens of human physiology. Hippocrates noted that voice production depends not solely on the anatomical structure of the larynx, but also significantly on an individual's overall biological condition. He observed that various illnesses could directly influence specific vocal attributes such as pitch, intensity, and timbre (Lavrova, 2022; Seliverstov, 2020).

It is noteworthy that several concepts commonly used in modern speech therapy already appeared in the works of Hippocrates. Among these terms are voice loss (aphonia), speech loss, speech difficulties, and stuttering.

Hippocrates' pioneering ideas on vocal disorders and voice formation laid foundational groundwork that was further developed by subsequent scholars, notably Galen, who became recognized after Hippocrates as the greatest medical theorist of antiquity. Galen significantly expanded upon these early concepts, enriching the understanding of voice and speech disorders and profoundly influencing the evolution of medical thought in these areas (Shashkina, Zhuravleva, Agayeva & Zolotvrev, 2024; Lavrova, Uklonskaya & Minaeva, 2021).

Claudius Galen (approximately 129–216 AD), an ancient Roman physician, surgeon, and philosopher of Greek descent, contributed significantly to the understanding of voice production by detailing the critical role of the respiratory system in phonation. Galen asserted that "everything in nature is created harmoniously," highlighting specifically that respiration temporarily ceases during voice production, reflecting the precise coordination required for phonation (Lavrova, 2022; Lavrova, Uklonskaya & Minaeva, 2021; Seliverstov, 2020).

After Galen, considerable insights into voice production and related pathologies were documented by the renowned medieval Persian philosopher, physician, and scientist Avicenna (Abu Ali al-Husayn ibn Abd Allah ibn Sina, 980–1037). In his seminal work, *The Canon of Medicine*, Avicenna meticulously described diseases affecting the vocal apparatus along with the relevant therapeutic interventions, thus laying foundational knowledge for modern phoniatic medicine (Dimon, 2024; Lavrova, 2022; Lavrova, Uklonskaya & Minaeva, 2021).

Furthermore, the Renaissance period saw revolutionary contributions to both art and medical science by the celebrated Italian polymath Leonardo da Vinci (1452–1519). His extensive anatomical investigations culminated in the creation of detailed anatomical atlases, which provided comprehensive insight into human anatomy, including critical descriptions of the structural features of the vocal and articulatory apparatus. Da Vinci's anatomical illustrations served as authoritative references for nearly three centuries, significantly advancing scientific understanding of voice and speech mechanisms (Shashkina, Zhuravleva, Agayeva & Zolotvrev, 2024).

Throughout history, the human voice has been a subject at the intersection of numerous scientific disciplines. From an acoustic standpoint, voice is studied as sound; biologically and biophysically, it represents the product of physiological processes; artistically, particularly within vocal performance, it is appreciated as an aesthetic phenomenon; and psychologically, the voice serves as an expressive indicator reflecting an individual's emotional and psychological states (Dimon, 2024; Lavrova, 2022; Lavrova, Uklonskaya & Minaeva, 2021; Seliverstov, 2020).

For example, according to numerous researchers, the melody of a voice conveys essential information about an individual's personality traits and emotional state. Renowned expert opinions

suggest that vocal melody provides meaningful insights into personal identity, physical and emotional health, and overall psychological state.

Reflecting on this idea, the celebrated researcher Andguladze aptly describes the human voice as the "foundation of language and poetry," emphasizing: "Through speech and song, the human voice conveys to us the entirety of human history, culture, and the emotional experiences of mankind" (Seliverstov, 2020).

While reflecting on the voice formation mechanisms, it should be noted that the process of voice formation involves the coordinated function of multiple anatomical systems, including the respiratory system, the larynx, the resonator cavities, and the articulatory apparatus (Lavrova, 2022). Essentially, the voice can be characterized as phonation occurring through coordinated activity, wherein the airflow generated during exhalation is shaped by the resonator systems (chest and head cavities) and modulated further by the articulatory apparatus, thus giving it its distinctive tonal quality and acoustic individuality (Sobolnikov, 2024; Lavrova, 2022; Lavrova, Uklonskaya & Minaeva, 2021).

The human voice is produced through a complex and coordinated interplay of various anatomical structures. At its core, voice production begins with the vibration of the vocal cords situated within the larynx. Structurally intricate, the larynx in adults is positioned at the level of the IV-VI cervical vertebrae, while in children it is located slightly higher, at the level of the II-IV cervical vertebrae. In elderly individuals, the larynx descends further, typically reaching as low as the VI cervical vertebra.

As air passes through the vibrating vocal cords, initial sound waves are generated. These waves then travel through the resonatory systems, including both chest and head cavities which significantly modify and enrich the vocal quality. The primary acoustic characteristics of the voice, such as pitch, intensity, and timbre, are ultimately determined through modulation by these resonator cavities and the articulatory apparatus, resulting in the unique vocal signature of each individual (Lavrova, 2022; Lavrova, Uklonskaya & Minaeva, 2021).

The intensity of voice is determined by the amplitude of vocal cord vibrations per second and is measured in decibels (dB). The greater the amplitude of these vibrations, the louder the resulting sound. Typically, during communication, the human voice ranges between moderate intensities of sound, approximately 40-70 dB. However, increased amplitude results in significantly louder sounds. For instance, professional voice users, such as singers, may frequently reach higher intensity levels ranging between 90-110 dB (Sapienza & Hoffman, 2020).

Pitch is determined by the frequency of vocal cord vibrations per second and is measured in hertz (Hz). During typical speech, the fundamental frequency in males ranges approximately from 85 to 200 Hz, while in females, it typically varies from 160 to 340 Hz.

Voice timbre is the distinct quality or tonal color of the voice, determined by the combination of vibration frequencies and amplitudes. Timbre is a unique vocal characteristic, that allows differentiation between individual voices. It enables listeners to recognize and identify individuals by their voices alone.

The vocal range represents the span between the lowest and highest tones an individual can produce and is highly specific to each person, varying considerably from one individual to another (Sobolnikov, 2024; Lavrova, 2022; Sapienza & Hoffman, 2020).

Thus, it can be inferred that the multifaceted nature of the human voice is inherently linked to its anatomically complex structure, capable of producing distinct tones and individualized vocal coloring. However, it should be noted that the vocal apparatus does not constitute an independent anatomical system dedicated exclusively to voice production. Instead, voice formation results from the coordinated interplay of various anatomical structures, including the respiratory and articulatory organs.

Specifically, voice production involves several anatomical components: the lungs, larynx, pharynx, diaphragm, trachea, bronchi, oral and nasal cavities, and associated resonator spaces. Indeed, vocalization is ultimately the product of additional coordinated efforts of the respiratory system (Sobolnikov, 2024; Lavrova, 2022; Lavrova, Uklonskaya & Minaeva, 2021).

Undoubtedly, how the voice is initiated—known as the "vocal onset" or "attack" plays a critical role in the quality of voice production. Vocal onset is typically classified into three distinct types:

1. Breathy onset (aspirate onset): This occurs when phonation begins with gentle exhalation before the vocal cords come together, causing them to subsequently vibrate. In this case, the voice emerges after an initial slight breathy noise.
2. Soft onset (simultaneous onset): In this type, the vocal cords come together simultaneously with the onset of exhalation, resulting in a smooth and balanced initiation of sound.
3. Hard onset (glottal onset): Here, the vocal cords are forcefully brought together before the onset of exhalation. Airflow subsequently pushes through the tightly closed vocal cords, initiating vibration. This type of vocal onset is characterized as harsh and abrupt and can, in some cases, contribute to vocal disorders or damage (Sobolnikov, 2024; Lavrova, 2022).

Consequently, for representatives of numerous professions, the voice serves as an essential "instrument" or primary "tool" of their professional activities. Damage to, or loss of, this vital resource can profoundly impact an individual's social status and significantly limit their professional capabilities and overall quality of life.

METHODS

This study employed a desk review methodology, involving a systematic analysis and synthesis

of existing scholarly literature, publications, textbooks, and other relevant academic sources (Grant & Booth, 2009). The desk review was conducted by identifying, evaluating, and integrating previous findings related to voice production mechanisms, vocal disorders, and related medical and pedagogical implications. Sources reviewed included both historical texts and contemporary publications, allowing for comprehensive coverage of theoretical foundations, empirical evidence, and expert insights on the subject matter. This methodological approach facilitated an in-depth exploration of the research topic, ensured accurate historical contextualization, and provided a robust foundation for the conclusions and recommendations presented in this article.

RESULTS

When considering specialists engaged in voice-related professions, it is important to acknowledge that many among them including teachers, educators, singers (musicians), actors, broadcasters, simultaneous interpreters, political and public figures, speakers, attorneys, judges, tour guides, telephone operators, coaches, military personnel (commanders), as well as organizational leaders frequently need to engage in prolonged speaking activities. Such extended vocal use may inevitably lead to excessive strain on the vocal apparatus, resulting in partial vocal disturbances or, in severe cases, complete loss of voice (aphonia).

In this context, it is crucial to highlight several adverse factors that contribute significantly to the development of voice disorders. These include stress, dry air, unfavorable or challenging working conditions, harmful lifestyle habits (such as smoking or excessive alcohol consumption), and noisy environments. Such negative influences increase the load on the vocal cords, ultimately resulting in diminished vocal quality and potential vocal impairment (Shashkina, Zhuravleva, Agayeva & Zolotvireva, 2024; Seliverstov, 2020).

In this context, the influence of various negative professional factors contributing to vocal disorders has been extensively documented. Particularly relevant is the research conducted by Seliverstov, highlighting the significant prevalence of voice disorders among specific professional groups. According to the presented data, tour guides show an exceptionally high incidence rate of voice disturbances (77%), followed by interpreters (31%), preschool and kindergarten teachers, and caregivers (educators) in childcare institutions (also significantly affected). Such statistical evidence underscores the direct relationship between profession-specific or profession-based vocal demands and the elevated risk of developing vocal impairments (Karpishchenko, 2023; Seliverstov, 2020).

It is important to emphasize that individuals engaged in voice-related professions are particularly vulnerable if they possess one or more of the following health conditions or disorders, which are

incompatible with effective long-term voice functioning:

1. Pathologies of the larynx, resonator system, or upper respiratory tract, including acute and chronic conditions such as laryngitis, rhinitis, tonsillitis, adenoids, sinusitis, adenoid hypertrophy, inflammation of the pharynx (pharyngitis), and other similar conditions.
2. Allergic disorders, including bronchial asthma, allergic rhinitis, and related respiratory allergies.
3. Neurological disorders and psychological conditions, which can negatively affect the quality, stability, and control of voice and speech.
4. Speech disorders and articulatory difficulties, which may hinder clear communication and professional vocal performance.

Therefore, these indicators of vulnerability underline the critical role of good vocal health, demonstrating that vocal integrity is not only integral to successful professional functioning but also significantly contributes to career development and longevity within voice-related and voice-dependent fields.

Finally, it is necessary to turn the attention to those professions that are classified according to the specific requirements related to voice quality.

(a) Professions requiring high vocal quality and specialized vocal technique:

These include professional singers, actors, and broadcasters. Singers must possess advanced vocal control, mastery of breathing techniques, and an ability to produce precise vocal nuances. Actors similarly face rigorous vocal demands, as they must effectively convey diverse emotional states and portray various characters using a wide range of vocal modulations, intonations, and expressive nuances. Broadcasters and media presenters must likewise demonstrate clear, articulate, and precisely controlled speech, as they directly communicate with large audiences. For these professionals, proper voice management and vocal hygiene are primary concerns and essential professional competencies.

(b) Professions demanding consistently clear and effective vocal communication:

These include educators, teachers in preschool institutions, instructors, guides, interpreters, trainers, and coaches. Within this group, the voice serves not only as a primary communication tool but also significantly impacts professional effectiveness. For instance, educators rely heavily on voice as a primary teaching instrument, directly influencing the effectiveness of the educational process. Hence, individuals in these vocations must possess vocal endurance and master fundamental vocal techniques, including proper breathing, voice modulation, and articulation. Furthermore, they must be capable of managing and overcoming common vocal challenges such as fear, anxiety, or tension during public speaking.

(c) Professions with high demand for vocal clarity and endurance, frequently in acoustically challenging environments:

These include attorneys, judges, military commanders, coaches, and other professionals regularly required to deliver prolonged speeches or commands clearly and persuasively, often under adverse or noisy conditions. For instance, legal professionals, including attorneys and judges, frequently speak during courtroom proceedings, necessitating vocal clarity, confidence, and endurance. Similarly, military personnel (particularly commanders) must frequently issue clear, audible commands in outdoor or acoustically challenging environments, a situation that significantly affects vocal quality and requires heightened vocal endurance and resilience (Sobolnikov, 2024; Karpishchenko, 2023; Lavrova, 2022; Orlova, 2008).

As demonstrated, each of these professions relies fundamentally on both verbal and vocal skills and non-verbal or paralinguistic cues. Non-verbal communication includes subtle nuances conveyed through tone, intonation, and other acoustic characteristics, which not only enrich the communicative process but also reflect an individual's personality traits, emotional state, and professional competence.

It is therefore evident that individuals engaged in voice-related professions must demonstrate a particular commitment to vocal care and preservation. This involves consciously managing, controlling, and maintaining vocal quality through consistent monitoring, the application of vocal hygiene practices, and proactive measures designed to protect their vocal health.

VOCAL HYGIENE

To effectively maintain vocal health, professionals engaged in voice-related occupations must understand and implement three levels of voice disorder prevention:

Primary Prevention involves measures taken before voice problems occur. Voice professionals should adopt preventive practices aimed at reducing risks associated with vocal disorders. Such measures include raising awareness about vocal hygiene, recognizing risks such as daily vocal overload (exceeding 6 hours per day), and proactively managing voice usage to avoid excessive strain. Additionally, primary prevention emphasizes maintaining appropriate vocal habits, adhering to optimal vocal routines, and avoiding vocal overload. It also involves educating voice professionals on optimal voice usage, proper vocal rest intervals, adequate hydration, dietary considerations, and lifestyle adjustments aimed at preventing the onset of vocal disturbances.

Secondary prevention involves the early detection and identification of vocal disturbances at initial or latent stages. This prevention level emphasizes timely diagnosis and prompt intervention to address emerging vocal disorders before they become chronic or severe. Regular screenings, early

diagnostic assessments, and ongoing monitoring of vocal health among voice professionals constitute essential strategies at this level.

Tertiary Prevention focuses on managing and mitigating established voice disorders to minimize their progression and reduce long-term impact. It is well-documented that vocal impairments significantly limit the selection and continuation of voice-dependent professions. Consequently, tertiary prevention emphasizes interventions aimed at rehabilitation, therapeutic support, and social and occupational adaptation of individuals experiencing vocal disorders. This level involves rehabilitative practices, voice therapy, as well as comprehensive social and vocational adaptation measures designed to support individuals in maintaining or returning to professional productivity and quality of life.

One of the essential challenges is to explore and establish the relationship between vocal preservation practices and the prevention of voice disorders.

Now, let us examine the primary causes contributing to the occurrence of voice disorders among voice-related professionals.

Primary causes contributing to voice disorders among voice-intensive professionals include:

- Overuse or misuse of the vocal apparatus: Incorrect vocal techniques, excessive vocal strain, and failure to adhere to appropriate vocal hygiene practices (e.g., shouting, speaking loudly, prolonged voice usage without adequate rest).
- Stressful nature of certain occupations: Direct communication with the public or groups (e.g., community, school, family, colleagues) entails high responsibility, often leading to emotional overload and heightened psychological stress. Additionally, personal, familial, psychological, and workplace tensions, including interpersonal conflicts, directly influence voice health. Such chronic stressors may escalate, resulting in borderline psychological conditions, such as neuroses, depression, anxiety, and ultimately professional burnout.
- Adverse environmental and working conditions: Ecological and occupational factors, including exposure to extreme or fluctuating temperatures, strong winds, high humidity, poorly ventilated rooms, dry air, and unsuitable indoor temperature conditions, may lead to physical, psychological, and general health concerns (e.g., chronic fatigue, headaches, respiratory issues, reduced immunity). Persistent exposure to dust may additionally affect respiratory health, causing allergies, respiratory tract irritation, and, with prolonged exposure, chronic respiratory diseases. Furthermore, detrimental lifestyle habits such as smoking, alcohol abuse, and poor dietary choices exacerbate these issues, negatively influencing overall vocal and general health.

Incidentally, functional voice disorders include conditions such as phonasthenia, hypo- and hypertonic aphonia (complete loss of voice), and dysphonia (partial voice impairment).

The term phonasthenia (phon—"voice," asthenia—"weakness") is used to describe a common vocal dysfunction among voice-intensive professionals. Unlike organic voice disorders, phonasthenia typically shows no initial visible anatomical changes in the vocal apparatus. Its characteristic symptoms include incompatibility between breathing and phonation, variability in vocal intensity (excessively loud or weak voice), and in severe cases, a complete inability to produce voice, known as aphonia (Shaboyan, 2024; Lavrova, 2022; Sapienza & Hoffman, 2022; Orlova, 2008).

Interestingly, the term monophonic ("monophonic") was first introduced by Fraenkel (1887) to describe functional voice disorders characterized by vocal fatigue and impairment without visible anatomical changes. However, many contemporary authors prefer the term phonasthenia (from Greek: *phōnē* - voice, and *asthenia* - weakness), originally proposed by the German physician Hermann Gutzmann in 1890, to characterize such disorders. Later widely accepted and used internationally, phonasthenia describes symptoms such as vocal fatigue, fluctuations in vocal intensity, and difficulty maintaining consistent voice quality conditions frequently observed among professionals with intensive vocal workloads.

The neurologist Edward Flatau (1906), in discussing phonasthenia, defined it as a functional vocal disorder characterized primarily by voice loss or vocal fatigue without any observable organic changes in the vocal apparatus. Flatau associated phonasthenia closely with professional voice use, emphasizing that individuals from different professions exhibit distinct vocal symptoms. Based on his observations, Flatau categorized phonasthenia into the following forms:

- **Resiasteniya:** A vocal disorder predominantly observed among teachers, actors, and public speakers, characterized by vocal fatigue resulting from prolonged vocal use.
- **Klesiasteniya:** A voice disorder commonly found in military commanders and sports coaches, whose professions demand strong, authoritative vocal projection, often in challenging acoustic environments.
- **Disodia:** A disorder specific to singers and musicians who perform softly or in whispered singing styles, such as guitar, kanun, kamancha players, and similar instrumentalists (Shashkina, Zhuravleva, Agayeva & Zolotvrevva, 2024).

The renowned Egyptian phoniatician Nada Kotby (1995) further described phonasthenia as a specific form of dysphonia with distinctive features significantly impacting the individual's quality of life, although these symptoms often remain unnoticed by clinicians. Kotby highlighted typical patient complaints, including sensations of throat dryness, reflexive coughing, respiratory difficulty, vocal challenges in stressful situations, and noticeable voice changes following prolonged speaking. Furthermore, Kotby defined disodia as a singing-specific voice disorder that, notably, does not typically

hinder normal speech communication (Shashkina, Zhuravleva, Agayeva & Zolotvrevva, 2024; Abitbol, 2018).

Thus, it is evident that vocal disorders among voice-intensive professionals are primarily triggered by multiple negative factors, including excessive vocal fatigue, improper vocal techniques, infectious and viral illnesses, unfavorable environmental conditions, and psychological stressors. To effectively prevent these disorders, particular attention must be paid to the correct application of vocal techniques, consistent vocal hygiene, and awareness of proper voice care principles. Neglecting these essential preventive measures can inevitably result in significant vocal impairments, or in severe cases, even the total loss of voice (aphonia).

CONCLUSION

Maintaining optimal vocal health is essential for professionals whose careers depend extensively upon effective voice use. This article highlighted the critical relationships among profession-related vocal demands, physiological mechanisms of voice production, and factors influencing vocal disorders. It emphasized historical perspectives and contemporary research, reinforcing the need for comprehensive vocal care strategies.

Given the multifaceted nature of vocal disorders ranging from functional issues like phonasthenia to more specialized forms such as resiastheniya, klesiastheniya, and disodia it is evident that preventive approaches should be systematically applied at all levels. Effective primary prevention, regular screenings for early diagnosis, and specialized rehabilitative interventions are fundamental for minimizing occupational risks and preserving vocal capabilities.

Ultimately, increased awareness and rigorous adherence to vocal hygiene practices, coupled with targeted educational initiatives, are crucial for safeguarding vocal quality. Such efforts not only support professional success but also significantly enhance the overall quality of life, ensuring that voice-related professionals continue contributing meaningfully to their respective fields without compromising their vocal health.

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EXPERIENCES OF OCCUPATIONAL THERAPISTS IN IMPLEMENTING THE WHO ICF MODEL FOR DISABILITY DETERMINATION IN ARMENIA

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ABSTRACT

In 2023, the Republic of Armenia officially transformed its previous disability assessment system to a new process based on the World Health Organization's (WHO) International Classification of Functioning, Disability, and Health (ICF) model. The purpose of this study is to identify and analyze the barriers faced by Occupational therapists when assessing the domains of activity and participation within the framework of the new ICF disability assessment process in Armenia and suggest improvement solutions.

The methodology of this research study is based on a qualitative descriptive approach, as it provides in-depth insights into participants' experiences, perceptions, and meanings. The data collection method was semi-structured virtual interviews with six Occupational therapists working in the Administration of Person Functionality Assessment. Data analysis was conducted using thematic analysis.

This study identified two categories of key factors affecting the disability assessment process - external (i.e., systemic) and internal (i.e., related to the therapists' actions). External factors included coding inconsistencies, lack of standardized assessment tools, insufficient training for paramedical specialists, and the complexity of the assessment process, all of which hindered effective evaluations.

Internal factors included limited professional experience in adult rehabilitation, lack of multidisciplinary collaboration, and the risk of influencing patient responses. These challenges highlight the need for multilevel interventions such as targeted professional development, increased availability of standardized tools for the Armenian context, and training related to multidisciplinary coordination of care to strengthen the assessment process.

Keywords: *Occupational therapist, WHO ICF, disability determination, assessment, people with disabilities, Armenia.*

INTRODUCTION

Beginning February 1, 2023, the Republic of Armenia officially transformed its previous disability assessment system, the Medical-Social Expertise System, to a new Person's Functionality Assessment based on the World Health Organization's (WHO) International Classification of Functioning, Disability, and Health (ICF) model (World Health Organization, 2001).

The new Person's Functionality Assessment allows for a comprehensive evaluation of a person's health issues, activity limitations, participation restrictions, and environmental factors impacting functionality. This approach ensures a more comprehensive provision of services promoting social inclusion and addressing targeted individual needs. In the previous Medical-Social Expertise System, disability assessments were conducted exclusively by medical specialists. Under the new system, assessments are carried out by both medical and paramedical specialists. The medical specialists evaluate body functions and structures, which is defined as the degree of impairment caused by a health condition and its impact on vital activity. The paramedical specialists, including Occupational therapists, assess a person's activity, performance, and participation in community life. The most significant change in the new disability determination process, perhaps, is the inclusion of how environmental factors, such as assistive devices (e.g. wheelchairs, hearing aids, prosthetics) and communication support (e.g. Braille, voice recognition software), influence functionality.

As expected with the launch of new initiatives, assessment specialists have identified several issues. This research focuses on the experiences of Occupational therapists, one of the paramedical professions introduced to the evaluation team, and the challenges they have identified which affect the accuracy and effectiveness of the assessment process.

LITERATURE REVIEW

Legislative Framework on Disability in Armenia

In the Republic of Armenia, disability issues - including the protection of rights, social inclusion,

promotion of equality, and creation of equal opportunities - have consistently remained central to state policy. However, many provisions within the existing legislative framework have not kept pace with the evolving nature of contemporary legal and social relations. Contradictions and gaps in disability-related legislation undermine its enforcement, compounded by insufficient resources to support implementation. These limitations hinder the realization of rights and opportunities envisioned by the law, creating a need for comprehensive legislative reform.

By ratifying the United Nations Convention on the Rights of Persons with Disabilities (CRPD) in 2010, the Republic of Armenia committed to aligning its legislation with the CRPD requirements aimed at promoting, protecting, and ensuring the full and equal human rights and fundamental freedoms of persons with disabilities to live dignified lives (United Nations, 2006). As a result, several legislative amendments have been implemented, including a review of the mechanisms for determining disability status. These changes support an individual's rehabilitation potential and work activity, provide social services tailored to their abilities and needs, and promote full participation, engagement, and social inclusion. Ultimately, this can also reduce an individual's dependence on disability pensions, family allowances, or other benefits to be more financially independent.

Transition to the Biopsychosocial Model of Disability

In 2014, Armenia translated, adopted, and officially recognized the World Health Organization's International Classification of Functioning, Disability, and Health (ICF) as a national standard for disability determination based on a comprehensive assessment of the person (Government of Armenia, 2014). ICF is recognized as an international standard for framing, describing, recording, and measuring functioning and disability. This universal model shifts focus from an impairment-based model towards individual strengths and preserved abilities, fostering active participation in public life (World Health Organization, 2001).

Building on this foundation, the Law On the Rights of Persons with Disabilities and the Law On the Assessment of Personal Functionality in 2021 marked a transformative shift in disability assessment (Republic of Armenia, 2021). These laws introduced a new functionality-based model rooted in the ICF framework, emphasizing the degree of functional limitations and the role of environmental factors on activities and participation. This model enables a comprehensive evaluation of individual needs, paving the way for targeted services and more significant inclusion in public life. The new law defines a person with a disability as “a person who, as a result of the interaction of physical, mental and/or long-lasting problems and environmental barriers, may have a limitation of full and effective participation in public life on an equal basis with others” (Republic of Armenia, 2021, p. 2).

The ultimate goal of these reforms is to transition from a medical model of disability to a biopsychosocial model, aligning Armenia's policies with the principles of the CRPD. By focusing on the interaction between individual functional limitations and environmental factors, this approach aims to promote equity, inclusion, and human rights in disability assessment and service provision (United Nations, 2006).

Within the Republic of Armenia, the Ministry of Health (MoH) holds primary responsibility for overseeing the population's health. However, the Ministry of Labor and Social Affairs (MoLSA) primarily provides social services and assistive products. MoLSA is central in delivering social services to vulnerable groups, including persons with disabilities, and ensuring access to necessary assistive technologies. In 2021, the MoLSA established the Unified Social Service (USS) to integrate social services nationwide. There are 49 USS centers (informally known as “territorial centers”) across Armenia, with four to five centers in each region. The USS centers house the Department of Person's Functionality Assessment and Provision of Assistive Devices, responsible for conducting disability determination, compiling individual service plans, and assisting product referral.

Implementation of the ICF Framework in Armenia

On February 1, 2023, the Ministry of Labor and Social Affairs (MoLSA) launched the new functionality assessment system according to the procedure approved under Decision No. 1180-N (Government of the Republic of Armenia, 2022a).

Citizens begin the process by submitting an application via medical institutions, which is the e-disability.am platform or by visiting one of the 49 territorial centers of the Unified Social Service (USS). Their information is verified, and the applications are checked for completeness and accuracy. Medical documentation confirming the health condition and a referral for the functional assessment are retrieved from the electronic health system, "ArMed." The evaluation is then carried out at the designated USS territorial center corresponding to the individual's place of registration.

Once all necessary documents and data are uploaded, the electronic system automatically selects a medical specialist, the “vignette developer,” who compiles the functional assessment summary. The summary is a detailed description of the individual's functionality based on a self-assessment questionnaire, medical documents, and other relevant information, including the type and category of functional assessment outlined below. After the summary is processed, the system randomly assigns an evaluation committee. On the assessment day, committee members review the individual's electronic file, perform an objective examination, and record the results in the electronic system.

The assessment is now conducted by a multidisciplinary assessment committee, formed through a

random selection process from a registry of specialists. This committee includes medical specialists (i.e., doctors with various specializations) and paramedical specialists. The term "paramedics" has been incorporated by MoH Order No. 29-N (Minister of Health of the Republic of Armenia, 2021), which identifies paramedical specialists as those who work within ergotherapy, speech therapy, psychology, kinesiology, special education, and other relevant fields. The committee's responsibilities are: medical specialists assess body functions and structures, while paramedical specialists assess the person's activity and participation.

The Ministry of Labor and Social Affairs Methodological Guidelines for Assessing the Functionality of a Person (hereinafter referred to as "Methodological Guidelines"), by Decision No. 1180-N, outlines the areas subject to assessment, components and subcomponents, functional assessment codes (hereinafter referred to as "codes"), functional assessment qualifiers (hereinafter referred to as "qualifiers"), as well as the indicators for assessing qualifiers.

ICF qualifiers provide a standardized method for assessing the degree of a person's functioning and disability. These qualifiers evaluate how much an individual can perform activities and participate in society, considering body functions, structures, and environmental factors. The qualifiers range from "no difficulty" to "complete difficulty," allowing for a detailed and systematic description of an individual's abilities and limitations.

The functional assessment is divided into three sections, each assigned alphanumeric codes corresponding to specific domains: functions of the organism ("b codes"), the structure of the body ("s codes"), and activity and participation ("d codes"), as defined in Decision No. 1177-N on the Approval of Criteria and Instruments for Assessing Personal Functionality (Government of the Republic of Armenia, 2022b). The assessing specialist for each section enters the respective codes into the electronic "e-disability" system, which automatically determines the degree of limitation of the person's functionality according to an algorithm.

The functional assessment is categorized according to the following domains, with its protocol:

- Motor impairments
- Visual impairments
- Hearing, speech, and voice impairments
- Mental health conditions
- Chronic illnesses

These functional assessment protocols are stratified by age groups to support age-appropriate evaluation and interventions, recognizing the distinct developmental needs and functional capabilities at different stages of life (0 -3 years, 4-6 years, 7-14 years, 15-18 years, and 18 years and older). This

stratification enables more accurate evaluations and the development of targeted interventions for the Individual Service Programs relevant to age-related challenges and milestones.

Once the information is entered into the e-Disability system, percentages and scales are calculated to determine the degree of functional limitation, as established by Decision No. 1177-N on Approval of Criteria and Instruments for Assessing Personal Functionality (Government of the Republic of Armenia, 2022a). This legal framework provides standardized criteria and tools for functionality assessment, ensuring that evaluations are consistent, objective, and aligned with national regulations.

Once a degree of functional limitation is determined (mild, moderate, severe, profound), specialists input all necessary services, types of assistive devices, and support programs into the e-Disability system. The automated system generates an Individual Service Program (ISP) based on these inputs. This regulatory structure ensures that assessments are conducted transparently and equitably, promoting the effective allocation of resources (Republic of Armenia, 2021).

International Perspectives on ICF Integration

Comparative Analysis of ICF Application for Disability Determination in Armenia and Cyprus Armenia is not the only country that has adopted the International Classification of Functioning, Disability, and Health (ICF) framework for disability services. This system was modeled after experiences in Cyprus. Cyprus introduced its ICF-based system in December 2013 under the Ministry of Labour, Welfare, and Social Insurance. A centralized Disability Assessment Center in Latsia, Nicosia, serves as the primary infrastructure for conducting evaluations. The center is equipped with modern facilities and staffed by multidisciplinary teams, including medical specialists and rehabilitation professionals. This centralized model ensures consistent and standardized assessments nationwide (Ministry of Labour, Welfare, and Social Insurance, n.d.). In comparison, Armenia's approach is decentralized, utilizing 49 territorial centers nationwide, supported by the e-Disability system for digitalized assessments.

Like Armenia, the objectives of the Cyprus Disability Assessment system include identifying, describing, and certifying the type and degree of disability and determining eligibility for state-provided benefits and services. However, the process in the two countries varies slightly. Assessments in Cyprus are divided into two phases: disability assessment and optional functioning assessment. The disability assessment focuses on diagnosing the disability type and its impact on eligibility for state benefits. In contrast, the functioning assessment evaluates daily life constraints and recommends interventions such as therapy, training, or assistive technologies. These processes are guided by structured protocols based on the World Health Organization's (WHO) ICF, ensuring scientific reliability and objectivity. After

assessments, Cypriot individuals receive a Complete Assessment Report of Disability and a Disability Card, which grants access to social benefits and services (Ministry of Labour, Welfare, and Social Insurance, n.d.). In contrast, Armenia's system incorporates self-assessment questionnaires and stratified protocols tailored to age-specific needs, reflecting a more participatory and developmental approach.

Notably, Cyprus also faces challenges in the widespread application of the ICF due to limited resources, the need for specialized training for healthcare professionals, and the integration of new methodologies into existing systems. While there has been significant progress in using the ICF to assess functional limitations and provide targeted services, further efforts are required to fully integrate it into all health and social care areas, ensuring that individuals with disabilities receive appropriate support (European Commission, 2019).

Cyprus's experience highlights the advantages of centralized infrastructure and structured protocols in fostering professionalism and inclusivity. While Armenia's digitalized and decentralized model offers accessibility and automation, Cyprus's centralized approach ensures consistency and reliability, demonstrating the flexibility of the ICF framework in addressing diverse contexts (Ministry of Labour, Welfare, and Social Insurance, n.d.).

While other countries have not modeled their national disability standards after the ICF, there are examples of ICF integration in various ways, including informing research, education, and policy, demonstrating the flexibility of its application. Fornari et al. (2022) provide an overview of two decades of ICF application in various countries. Using an online questionnaire and descriptive content analysis, researchers shed light on ICF applications in different healthcare and policy settings within the United Kingdom, the United States of America (USA), Brazil, Mexico, Iceland, and Norway (Fornari et al., 2022).

The United Kingdom has implemented the ICF within several projects in clinical, educational, statistical, and health policy domains to support data collection, research, and policy development. In the USA, the ICF is often utilized in educational and practical settings, such as informing surveys or collecting functional data. The ICF has informed social security planning and policy-making in Brazil and Mexico. Iceland and Norway have made the ICF available online and included it in national rehabilitation guidelines, although its use remains voluntary (Fornari et al., 2022).

Regarding health and social policy legislation, half of the responding countries (Germany, France, Sweden, Italy, Russia, South Africa, and Canada) reported using the ICF at regional and national levels. However, in most of these countries, it was applied as a general framework, with only Germany incorporating it into legal health and social policies. Some countries used the ICF for specific purposes,

such as issuing certificates to assess functioning (Sweden, Italy, the Netherlands, Australia, Russia), determining health insurance coverage (France, Sweden, Australia), or providing assistive aid (the Netherlands) (Fornari et al., 2022).

There is no universal approach to implementing the ICF. Each country adapts the framework according to its unique context to enhance services for individuals with disabilities, promote the development of inclusive policies, and achieve other related objectives.

Need for this Research

Since implementing this model in Armenia, no formal research studies have been conducted to evaluate the assessment process. To our knowledge, this research is the first to explore this topic from the perspective of the assessment committee. As the authors themselves are ergotherapists, this study focuses on Occupational therapists' experiences in the assessment committee.

Occupational therapists play a crucial role in applying the International Classification of Functioning, Disability, and Health (ICF) framework during assessments. Their expertise in evaluating clients' functional abilities and designing personalized interventions aligns seamlessly with the ICF's holistic approach to health and disability (Johnston & Ng, 2018). Occupational therapists are already trained to address the complex interplay between an individual's health conditions and environmental and personal factors within their clinical practice.

This study aims to address this gap in research by evaluating Occupational therapists' experiences and suggestions for improvement to contribute to developing a more effective and inclusive assessment framework.

METHODOLOGY

Data collection

This study employed a qualitative descriptive design to explore Occupational therapists' experiences and approaches in the Administration of Person Functionality Assessment evaluation process. Qualitative research allows for a deeper exploration of personal experiences, capturing contextual and subjective meanings that quantitative methods might overlook (Creswell & Poth, 2018).

Data were generated through semi-structured virtual interviews conducted in Armenian. The interviews were transcribed verbatim in Armenian and translated into English for analysis. Thematic analysis (Braun & Clarke, 2006) was used to identify patterns and themes across the data. Our international research team, consisting of members from Armenia, Canada, and the USA, analyzed the original Armenian transcripts and the English translations. Any discrepancies that arose during the

analysis were addressed through collaborative team discussions to ensure consensus and accuracy in the interpretation of the data.

Participants

The study involved six qualified occupational therapists who live in different regions of Armenia and work in administering persons' functionality assessment at the Unified Social Service, each with more than three months of experience in their roles. All participants were female, and their ages ranged from 27 to 46, with a mean age of 32. The participants were from different regions of Armenia: one therapist resides in the Shirak region, two in the Kotayk region, one in the Aragatsotn region, and two in Yerevan. This regional diversity ensured a broad representation of perspectives, including urban and rural settings, providing valuable insights into administering Person's functionality assessments nationally. All participants provided informed consent, and their identities were anonymized to protect confidentiality. Data was reported in aggregate form to ensure privacy.

RESULTS AND DISCUSSION

Qualified Occupational therapists working in the department of persons' functionality assessment and the provision of assistive devices in Armenia face numerous challenges that hinder their ability to perform thorough and practical evaluations. Findings have been categorized into external factors and internal factors. External factors refer to systemic challenges embedded within the broader health, education, and social systems, such as policy gaps, limited resources, and inadequate interdisciplinary collaboration. On the other hand, internal factors encompass individual Occupational therapists' professional dynamics and experiences, including their training, expertise, and familiarity with standardized assessment frameworks. By distinguishing these categories, our findings offer a comprehensive understanding of the multi-layered challenges influencing the assessment process and underscore the need for targeted strategies at both systemic and professional levels.

External Factors Impacting the Assessment Process

1. *Inconsistency with Coding*

Participants often reported challenges in linking codes between body functions, body structures, activity, and participation. This inconsistency can hinder practical assessments. For instance, in the case of macular degeneration or other visual impairments, specialists face significant challenges in linking the body function (B codes) and body structure (S codes) to activity and participation domains (D codes), especially in terms of daily activities.

While the individual may have impaired vision (B280, B810) due to the degeneration of the macula

(S750), the actual impact on activities such as handling objects (D350) and eating (D550) can be influenced by multiple factors, such as:

- Adaptation strategies: The person may learn compensatory strategies, such as using touch or memory to handle objects or navigate food preparation and eating.
- Environmental factors: The availability of aids like magnifiers or braille menus can significantly improve the person's ability to perform these activities.
- Psychological factors: The person's emotional response to the vision loss can impact their motivation to engage in certain activities, potentially reducing participation.

This complexity in linking body function and structure to activity can result in inaccurate assessments if the environmental and psychological aspects are not considered. For example, suppose the person's visual impairment is linked solely to the functional limitation in handling objects (D350) without accounting for their adaptation strategies or use of assistive devices. In that case, the actual level of participation in everyday life may be underestimated. Conversely, if these adaptive measures are not taken into account, the person's functionality may be overestimated in terms of their limitations in eating (D550), leading to inadequate interventions. Thus, the challenge in linking these codes arises because vision loss is not always straightforward and impacts daily life activities.

One participant shared, "Especially with lung function deficits, linking them to something like taking a shower is tough. You do not always see the effects directly, so it is hard to assess how much it truly impacts the person's ability to do daily activities." This challenge is evident across a range of conditions. Specialists must consider factors like the individual's ability to adapt, external aids, and coping strategies, which are not always captured within the basic ICF framework. Thus, the assessor's training and problem-solving skills are responsible for determining the connection between body functions, structures, and activities.

This can lead to inconsistencies and variability in determining the degree of limitation.

2. Lack of Standardized Assessment Tools

In Armenia, many standardized tests and assessment tools relevant to paramedical services have not been validated for the Armenian context. Instead, paramedical specialists rely on a methodological manual approved by the Minister's order. While the manual incorporates some international tests, it does not grant full permission for their use without validation, leading to the partial application of these tools. This gap has made it challenging to ensure consistency and accuracy in evaluations across different healthcare providers.

Participant 1 noted,

"I think standardized tests are critical, especially in evaluating a person's functionality. We

do not have a methodical manual developed for children aged 0-3, which causes a huge problem, and every specialist evaluates in a different format.”

This highlights the critical need for standardized tools, especially in pediatric assessments, to ensure consistency and prevent evaluation discrepancies, ultimately improving the quality of care provided to individuals with disabilities.

Another participant reflected,

“I would like more tests and exercises to be included in the methodology. For example, a citizen does not have any mental or physical limitations to use transport, but states that he has fears and there are no observations for the assessment of that difficulty in the methodological manual, and one psychologist can take this into account when writing a qualifier, another cannot.”

This comment further illustrates the lack of a standardized approach in addressing psychological or emotional factors during assessments. It underscores the necessity for a comprehensive and methodical framework that integrates physical and psychosocial considerations, allowing for more consistent and holistic evaluations.

Implementing standardized tests is crucial to ensure that all individuals with disabilities receive consistent, accurate, and equitable care. According to Lollar, Carlian, and Haley (2020), standardized tools offer a reliable and objective basis for assessing disability and functional abilities, ensuring that evaluations are consistent across different clinicians and settings. They help minimize bias, enhance comparability of results, and ensure that interventions are targeted appropriately. Additionally, using standardized tools improves the accuracy of determining eligibility for services and ensures that interventions are based on well-defined, evidence-based criteria (Coster, Khetani & Haley, 2019).

With EU funding, efforts have been initiated to address this issue in Armenia, including translating and adapting key tools such as the Canadian Occupational Performance Measure (COPM) and the Gross Motor Function Measure (GMFM). These tools are expected to partially standardize evaluations and provide a more reliable framework for assessing patients' needs and functionality.

3. Complexity in the Overall Assessment Process

Participants perceive the functionality assessment process to be complex and overwhelming due to the extensive range of codes. Each assessment protocol includes different sections' codes: B- Body Functions, S- Structure, D- Activities and Participation, and E- Environmental Factors. Each standard protocol comprises more than 70 codes the relevant specialists must complete. This complexity contributes to the inconsistent coding across specialists, ultimately affecting the reliability of assessment results. Hall, Pedersen, and Jensen (2022) emphasize “a clear understanding of the types of disabilities

experienced so that resources and programs can be tailored appropriately” (p. 1433). These authors highlight the diversity and complexity inherent in disability populations, noting that the diverse and complex aspects of a population and disability make it challenging to measure accordingly.

Participant 4 stated, "Due to the lack of specialists, the team consists of *either* an occupational therapist *or* a physiotherapist, with the assigned specialist evaluating the codes typically associated with the other professional's area of expertise."

The Department of Personal Functional Assessment faces a shortage of medical and paramedical specialists. Notably, only nine Occupational therapists, among the most in-demand specialists, are employed within the system, followed by kinesiologists and psychologists. Due to the shortage of Occupational therapists, assessment teams are structured so that either an Occupational therapist or a kinesiologist is tasked with evaluating codes specific to their respective fields (e.g., self-care activities, domestic life, and community/social life for Occupational therapists, mobility for kinesiologists). This practice stems from the scarcity of specialists, particularly Occupational therapists, especially in regional areas, leading to the consistent inclusion of either an Occupational therapist or a kinesiologist on every evaluation committee. Consequently, both specialists are required to assess an expanded range of codes. This approach introduces two potential risks. First, a lack of comprehensive understanding of another professional's domain may result in diminished expertise in using specific tools. Second, there is an increased workload to evaluate all required codes in a short amount of time. This may heighten the likelihood of errors and reduce specialists' overall efficiency, particularly over the course of a full working day.

In conclusion, the complexity of the functionality assessment process, compounded by a shortage of specialized professionals, presents significant challenges to the reliability and consistency of disability evaluations. The extensive range of codes, combined with the need for specialists to work across disciplines, leads to potential risks such as incomplete assessments and an increased likelihood of errors. Addressing these issues by expanding specialist training and improving interdisciplinary collaboration will be crucial to enhancing the effectiveness and accuracy of the assessment process, ultimately ensuring that individuals with disabilities receive appropriate and tailored services.

4. Shortage of Qualified Specialists

The paramedic field as Armenia only has two higher education institutions for that train paramedical specialists: (1) The Faculty of Special and Inclusive Education at the Armenian State Pedagogical University, named after Khachatur Abovyan, trains special educators, speech therapists, Occupational therapists, and notable psychologists, and (2) the Armenian State Institute of Physical Culture and Sport educates kinesiologists. The number of graduates is insufficient compared to the

demand for services. Participants noted low awareness of the field, suggesting that the social and health systems should educate young adults about these professions and develop strategies to encourage more people to join these professions.

There is a lack of awareness about occupational therapy in many regions. Participant 2 noted:

"In many regions, there is a significant lack of awareness and understanding of the occupational therapy profession." Similarly, Participant 4 emphasized the need for action, stating, "I think it is necessary to carry out awareness-raising campaigns on occupational therapy education and employment opportunities".

These insights highlight the importance of advocacy efforts to improve public awareness and expand professional opportunities for Occupational therapists.

Additionally, services are unevenly distributed across the country, with a higher concentration in the capital city, leaving a gap in services in the regions outside the capital city. Participant 5 highlighted the shortage of Occupational therapists in regional areas due to the lack of suitable job opportunities.

"I am from the Armavir region, but I started my career in Yerevan because there are either no jobs in our region or the salary is very low."

Salary disparities between regions and capital cities significantly contribute to this issue. To address this, participants suggested creating more job opportunities, offering specialized training, and increasing salaries to encourage the development and retention of specialists in regional areas. This, in turn, could motivate graduating students to pursue fields such as occupational therapy and to stay and work in their home regions.

5. Gaps in system management

Participants highlighted several systemic and technical issues that negatively impact work efficiency and, in some cases, the quality of disability assessments. A key concern was the extensive travel required due to the shortage of specialists in regional centers. Assessment teams often spend up to three hours traveling in one direction, leading to fatigue before they begin their evaluations. Participant 1 noted,

"By the time we get to the assessment center, we are already quite tired."

This exhaustion reduces focus and energy levels, potentially affecting the accuracy and thoroughness of assessments.

Additionally, the pressure to complete multiple evaluations in a limited time further strains the specialist, impacting their performance and well-being. Participant 2 explained,

"Sometimes, we try to complete all the assessments as quickly as possible so we do not get home too late."

Workload distribution also emerged as a critical issue. Participant 1 pointed out,

“If specialists did not have to travel to assessment centers every day on top of their already heavy workload, they might have more energy and be more engaged in their work.”

This suggests that reducing unnecessary travel and ensuring a more balanced workload could improve efficiency and job satisfaction.

These findings align with the research of Vinston and Sharon (2023), who examined the effects of frequent business travel on employees' work-life balance. Their study, "A Study to Determine the Impact of Business Trips on Employees' Work-Life Balance at Service Industries," found that excessive travel leads to stress, fatigue, and disrupted personal lives, ultimately reducing job satisfaction and productivity. Similarly, specialists conducting disability assessments face these challenges, with frequent travel negatively affecting their performance and overall well-being.

Internal Factors Impacting the Assessment Process

1. *Limited Professional Experience in Adult Rehabilitation*

In Armenia, rehabilitation for children is generally more developed and aligned with contemporary standards than rehabilitation services for adults. Because of the increased employment opportunities in pediatric rehabilitation for Occupational therapists, most training and professional development is also focused on pediatric services, leaving a significant gap in understanding and addressing the needs of adults with disabilities. This can lead to bias and misconceptions (Salinger et al., 2023).

One participant noted, *"I lack experience assessing adults, as I have mostly worked with children."* Similarly, another participant emphasized, *"I have no experience in adult rehabilitation; there are no structured training programs to develop these skills"*. This lack of experience leads to assessments that fail to fully capture adults' functional limitations and support needs, often resulting in inadequate service recommendations.

This gap in expertise frequently leads to assessments that fail to fully address the complex and diverse needs of adults with disabilities and to recommend targeted programs and services. While pediatric services benefit from established infrastructure, specialized personnel, and evidence-based practices, adult rehabilitation remains under-resourced, with limited access to specialized centers and comprehensive training. This imbalance undermines the core objective of the assessment process: to ensure equitable access to individualized, targeted services that meet the needs of individuals across all stages of life. Without a balanced approach that prioritizes pediatric and adult rehabilitation, the system risks perpetuating inequities in care and failing to meet the entire population's needs (World Health Organization, 2023).

The participants also highlighted the need to address this gap through professional development. One participant suggested, *"There should be more opportunities for professional development in adult disability assessment."* Paramedical specialists need to seek or create training opportunities focused on adult disability assessment to improve the accuracy and comprehensiveness of evaluations, ensuring that all individuals, regardless of age, receive appropriate and individualized services.

2. Lack of Specialized Training

Participants highlighted the critical need for paramedical specialists, such as Occupational and physical therapists, to receive comprehensive training in addressing complex health conditions, particularly for individuals with vision and hearing impairments or chronic conditions. Participant 1 elaborated:

"In the case of assessments for individuals with vision and hearing impairments, the lack of experience and specialized training presents a significant challenge..."

Participant 3 reported similar experiences.

"...during the assessment of chronic diseases, people with visual and hearing problems, there are difficulties due to lack of experience, due to the lack of equipment, the assessment may be incomplete."

This inadequate training undermines professionals' ability to fully understand the multifaceted issues presented during assessments, often resulting in superficial and incomplete evaluations within the ICF framework. As a result, people may not receive the best possible resources. These perspectives collectively emphasize the urgency of cross-disciplinary training, access to appropriate equipment, and an integrated understanding of rehabilitation's medical and functional aspects. Without these measures, Armenia's rehabilitation sector's capacity to deliver comprehensive and inclusive care will remain limited.

3. Lack of Multidisciplinary Collaboration

In Armenia, multidisciplinary collaboration in rehabilitation is a relatively new practice for both medical and paramedical professionals. Historically, medical specialists have been the leading figures in disability assessments, and integrating various disciplines into a collaborative team is a novel experience. This shift challenges many, particularly medical specialists who have traditionally worked independently and may find it difficult to adapt to team-based approaches.

This issue aligns with findings from a 2022 situation assessment of rehabilitation in Armenia conducted by the World Health Organization European Region. The assessment highlights a critical gap in developing a well-established, multidisciplinary, or interdisciplinary rehabilitation workforce in Armenia. Although various rehabilitation-related specializations for medical doctors exist, and occupational therapy has laid its foundational groundwork, the absence of a robust and diverse workforce

with equal representation of all relevant professions diminishes the potential for achieving optimal treatment outcomes. The report underscores that an integrated, team-based approach to rehabilitation is essential for maximizing patient care and treatment success:

“Armenia lacks a well-developed multidisciplinary/interdisciplinary rehabilitation workforce. The absence of a well-developed workforce, with diverse professions represented equally, reduces the potential for maximizing the treatment outcomes that could be achieved through highly integrated care.” (World Health Organization, 2022, p. xiv).

The WHO Rehabilitation Competencies Framework further emphasizes the importance of collaboration and professionalism in rehabilitation practice. It outlines the need for professionals to "recognize, respect, and utilize the expertise of others" and to "share and seek information with/from relevant colleagues and external stakeholders" (World Health Organization, 2022, p.18). Core competencies for effective teamwork, task-sharing, and interprofessional practice are integral to providing high-quality, patient-centered care (World Health Organization, 2022).

The challenges faced by healthcare professionals in Armenia are also reflected in the personal accounts of practitioners involved in disability assessments. One participant noted that internal professional conflicts negatively affected the quality of the assessment process, stating,

“Since the previous model was medical, there were doctors for whom it was difficult to cooperate with the medical team; there was no team discussion.”

Another participant reflected,

“Conflicts arose during the assessment process when professionals attempted to evaluate sections beyond their area of expertise or when discrepancies emerged between medical and paramedical observations regarding a Person's functional state.”

These observations point to a critical need for developing a multidisciplinary approach to rehabilitation in Armenia. Participants recommend that training address the nature of each professional's role and detailed aspects of evaluation and intervention. Moving forward, fostering interprofessional collaboration, improving communication among healthcare teams, and enhancing the integration of diverse rehabilitation professions will be essential steps toward improving rehabilitation practices and achieving better patient outcomes.

Since September 2024, site visits to disability assessment centers have been conducted in collaboration with Full Life NGO to advise the assessment team on issues and questions encountered during the assessment process. Thus far, seven visits have been completed by a team of expert doctors, Occupational therapists, and psychologists. Several challenges were identified during these visits, including a shortage of qualified specialists, particularly in regional areas, limited access to advanced

technologies required for comprehensive assessments, and the absence of standardized and reliable tools. Additionally, the reliance on partially validated international tests and the lack of appropriate equipment - such as Braille devices, speech-to-speech devices, and eye-controlled systems for individuals with multiple disabilities - further complicate the assessment process. This aligns with the findings of this study, reinforcing the need to improve the disability assessment process and implement solutions to support the assessment committees.

LIMITATIONS OF THIS STUDY

The limitations of this research include a relatively small sample size, as only six Occupational therapists participated. This limited sample may not fully capture the diversity of experiences and challenges of Occupational therapists across Armenia. Additionally, the study focused solely on Occupational therapists within the Administration of Person's Functionality Assessment, potentially omitting the perspectives of other paramedical professionals, such as physical therapists and psychologists, who also contribute to the disability assessment process. Another limitation is the use of virtual interviews, which may have hindered the observation of non-verbal cues that could have provided further insight into participants' experiences. The study's geographical focus on Armenia also limits the generalizability of the findings to other countries or regions with different healthcare infrastructures.

Furthermore, relying on semi-structured interviews means the data collected is subjective, and the researchers' perspectives may influence interpretation. Lastly, although the translation of the Armenian transcripts was carefully handled, some nuances may have been lost or altered in the process, potentially impacting the richness of the data.

CONCLUSION

In conclusion, the transition to the ICF model represents a significant and positive development, and this research aims to promote the successful implementation of this system. Assessing functionality and providing assistive devices for individuals with disabilities is a complex process that requires specialized expertise and access to various tools and resources.

In Armenia, as in many other countries, Occupational therapists play a crucial role by evaluating the physical, cognitive, and environmental factors that impact a person's ability to function independently. Successful implementation of the ICF assessment relies not only on the expertise of Occupational therapists but also on the availability of appropriate equipment, validated assessment tools, and a supportive infrastructure. However, several systemic challenges hinder the effectiveness of the disability assessment process in Armenia. These challenges are particularly pronounced in regional

areas, where access to qualified professionals and specialized resources is limited.

To better support the assessment team and improve the effectiveness of the disability determination process, we make the following recommendations based on participants' suggestions:

1. **Expand the Regional Workforce:** Increasing the number of specialists in regional centers would minimize excessive travel, improving efficiency and employee well-being.
2. **Enhance Scheduling & Rotation of Specialists:** Introduce a strategic scheduling system that frequently rotates specialists for on-job visits to distant regions, ensuring a more balanced workload.
3. **Promote Paramedical Professions:** Social and health systems should educate young adults about these professions and develop strategies to encourage more people to join, ensuring sustained growth in the allied health workforce.
4. **Foster Interprofessional Collaboration:** Enhancing teamwork and communication among professionals from different disciplines will lead to more comprehensive and effective rehabilitation services.
5. **Provide Specialized Training:** Focused training on the roles, evaluation techniques, and intervention strategies specific to each profession will improve service delivery and patient outcomes.
6. **Incentivize Regional Work:** Offering financial incentives, career development opportunities, and supportive working conditions can attract and retain specialists in regional areas.
7. **Targeted Professional Development in Adult Rehabilitation:** Develop specialized training programs focused on adult rehabilitation to enhance the skills and competencies of the assessment team.
8. **Increase Availability of Standardized Tools:** Provide more standardized assessment tools tailored to the Armenian context to ensure consistency and accuracy in evaluations.
9. **Enhance Multidisciplinary Coordination of Care:** Implement training related to multidisciplinary coordination to strengthen collaboration among team members, improving the overall assessment process.

Additionally, further research is needed to continue to expand the understanding of the challenges encountered in the disability assessment process. This study is particularly relevant as it represents the first attempt to examine the challenges faced by Occupational therapists since the model's introduction over the past two years. However, further research is necessary to explore the experiences of other professionals involved in the assessment process, including kinesiologists, who increasingly share responsibilities with Occupational therapists, and psychologists, who are engaged in all cases. Furthermore, speech therapists and special educators are crucial in assessing and supporting individuals with communication and developmental needs. Exploring their perspectives within the Person's Functionality Assessment model is essential. Examining the experiences of these professionals, along

with individuals with disabilities undergoing assessment, is crucial for evaluating the model's effectiveness and accessibility. A deeper analysis of these factors will contribute to refining the Person's Functionality Assessment, identifying systemic barriers, and developing evidence-based strategies to enhance the inclusivity and efficiency of the disability determination process.

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**SPEECH-LANGUAGE PATHOLOGY PRACTICE ADVANCEMENT: THE
INFLUENCE OF RESEARCH AND EVIDENCE-BASED PRACTICE ON STAYING
CURRENT**

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ABSTRACT

Speech pathology is a quickly evolving field as new research and discoveries may deem past practices old as newer practices prove to be more efficient in improving speech in patients. It is a speech therapist's job to learn current practices by taking courses and continuing their education, as well as exploring practices and techniques, different from their own, from other professionals to use any resource available to ensure the best treatment for their patients. Speech pathologists can continue their education through various methods, including but not limited to continuing medical education (CME) or continuing professional development (CPD) programs, conferences and workshops, and online courses/webinars. Most countries, including the U.S., require speech pathologists to take continuing education courses to reach a certain number of credits every few years to be able to maintain their licenses and continue their practice. Although many countries require pathologists to continue their education, there may still be challenges including time and financial constraints as some courses can cost up to \$700. However, the benefits of continuing education and learning to modify old patient practices to fit new research far outweigh the challenges that may come with it. It is crucial for countries like Armenia that do not have a strict policy for continuing education to modernize their medical education system and ensure that speech pathologists stay up to date on their medical knowledge and be able to help patients efficiently and effectively.

Key words: *Continuing education, speech therapy, American Speech-Language-Hearing Association (ASHA), professionals, practice, license, evidence-based practice (EBP), requirements, continuing education units (CEUs), research, speech-language pathologists (SLPs), programs, advancement, staying current.*

INTRODUCTION

To advance the field and studies of speech pathology and enhance patient care, speech therapists should continue pursuing education and engaging in new information related to their field. Research indicates that speech therapists may benefit from further exploring educational practices to increase their awareness of new discoveries in their practices by learning how to refer to online resources for addressing clinical inquiries.

LITERATURE REVIEW

The field of speech pathology is characterized by rapid development, driven by continuous research and innovation. To ensure effective patient care, speech-language pathologists (SLPs) must consistently update their clinical practices through ongoing education (American Speech-Language-Hearing Association [ASHA], 2020). Continuing education is essential for SLPs to maintain evidence-based practice (EBP), enhancing their clinical skills, knowledge, and professional competence (Megan & Heather, 2018).

Multiple avenues exist for continuing education, including Continuing Medical Education (CME) and Continuing Professional Development (CPD), conferences, workshops, and online webinars. According to Kastner (2021), professional development programs significantly influence clinical outcomes by facilitating the integration of current research into practice. Conferences and workshops provide opportunities for professionals to learn collaboratively, share experiences, and discuss practical applications, thus fostering professional growth and enhancing service quality (Lancaster, n.d.; Emelo, 2011).

Online education methods have particularly gained prominence due to their flexibility and accessibility. Çetin (n.d.) highlights the effectiveness of online professional development for educators and professionals during those periods when face-to-face training is challenging or impossible, such as during the COVID-19 pandemic. This shift underscores the importance of flexible and accessible continuing education opportunities for health professionals, including SLPs.

Despite clear benefits, continuing education poses challenges such as financial burdens and time constraints. Courses and workshops can be costly, limiting participation for some practitioners (Mataiti, 2008). However, research consistently demonstrates that investment in continuing education significantly outweighs the drawbacks. Finley (1988) and Thomas (2013) found that practitioners who engage actively in continuous learning demonstrate enhanced clinical judgment, better patient outcomes, and improved job satisfaction.

In countries like the USA, strict guidelines mandate a specific number of Continuing Education

Units (CEUs) every few years to maintain licensure (ASHA, 2020). This regulation ensures that SLPs remain current with advances in clinical research and practice methodologies. Conversely, countries lacking formal regulations, such as Armenia, face risks of clinical stagnation, potentially impacting patient care quality adversely (Ashekian, 2024).

Nomfundo and Joanne (2021) further emphasized the importance of continuing education through their exploration of telerehabilitation practices, noting how continuing education programs facilitated rapid adaptation among SLPs to telehealth services during emergencies. Similarly, Tucker (2012) documented how ongoing professional development supports practitioners' ability to adapt to evolving technologies and methodologies effectively.

Ultimately, the literature consistently advocates for continuing education as a cornerstone of quality improvement in speech pathology practice. Encouraging nations without mandatory continuing education policies to implement structured requirements can ensure practitioners remain informed of current best practices and research, thus significantly improving patient care outcomes (Squires, 2013; Megan & Heather, 2018). Addressing financial and logistical challenges through governmental or organizational support is crucial in promoting equitable access to professional development opportunities for all speech pathologists.

ANALYZES OF THE SITUATION

Background information in the field of speech therapy

The significance of evidence-based practice is the basis for expanding one's knowledge in their educational field and improvement in speech therapy practices. Continuing education allows speech therapists to stay current on research and learn new evidence-based information that may prove to be useful in their practices, ensuring they provide the most efficient treatment to clients. (Medical Necessity for Audiology and Speech-Language Pathology Services, n.d.).

The American Speech-Language-Hearing Association's position statement on evidence-based practice (EBP) was established in 2004. Since 2008, the Council on Academic Accreditation has required that graduate education programs in fields concerning speech-language pathology integrate research and evidence-based practices into their curricula and clinical practices. Following this need for more evidence-based practices in education programs, Employer-led EBP training opportunities and access to EBP resources have expanded over the past fifteen years (Greenwell & Walsh, 2021).

Working alongside professional groups and collaborative training opportunities can improve the knowledge and training required to provide support to patients with speech, language, and communication needs by enabling the sharing of knowledge and resources as people work to observe

and learn from one another. Speech therapists encounter obstacles in their ongoing education including learning new communication practices in clinical sessions that they may be unfamiliar with, collaborating with other healthcare professionals whose practice styles may differ, and learning to customize communication strategies to fit the unique needs of individual clients and circumstances. However, it is important for clinicians to continuously educate themselves and remain aware of these modern considerations to provide the best possible care for their patients. Research indicates that therapists may be required to provide training to other professionals on effective communication strategies and that there may be discrepancies in the strategies that are recommended for therapists and nurses. Furthermore, clinicians are required to address concerns regarding linguistic competence, gender, and social demographics in their professional practices (Armstrong & Ferguson, 2004).

Speech therapists supplement their ongoing education with resources such as therapy aides, games, and activities. It is crucial to foster collaboration between speech therapists and educators to offer assistance to children with communication, language, and speech impairments. Teachers and speech therapists acknowledge the necessity of supplementary resources and assistance; however, the demands of their caseloads and time can serve as obstacles to their provision. Interprofessional groups and collaborative training opportunities can facilitate the sharing of resources and the enhancement of support for children with speech, language, and communication needs (Jane et al., 2015).

Speech therapists keep up with the latest research by employing systematic reviews (SR) and meta-analyses, which offer the most rigorous evidence to confirm the efficacy of interventions. These evaluations assist professionals in maintaining their knowledge, evaluating the risks and benefits of interventions, and facilitating the development of care guidelines. For example, The Cochrane Collaboration is a critical organization that is involved in the production of evidence in speech therapy, establishing the criteria for the planning and execution of SR. Knowing how to identify quality SR and identify scientific evidence in corrected revisions can be advantageous for speech-language pathologists. It is important to stay informed about the latest research and guidelines to provide the best possible care for patients. Venessa et al. conducted a study on the effectiveness of SR in improving language outcomes in children with autism spectrum disorder. The study results had positive effects on language outcomes for children with autism spectrum disorder.

The current state of speech therapy education and a description of typical speech therapy education programs

Another example is SpeechPathology.com, which provides online continuing education units (CEUs) for speech-language pathologists. "Members are granted access to all SLP CEU courses for a

fee of \$129 annually. They offer resources and expert articles on SLP trends. SpeechPathology.com is an ASHA-approved continuing education provider that provides a variety of course formats and monitors CEUs to satisfy state license requirements. Additionally, they collaborate with universities to provide graduate-level credits to school-based SLPs (bilinguistics.com, n.d.).

Challenges faced by speech therapists in staying current with advancements

Maintaining awareness of the most recent research in our field and evidence-based therapeutic approaches necessitates earning continuing education units (CEUs). I am particularly fond of courses that provide practical advice and therapeutic techniques to assist you in working with your students and clientele. Professional development that is of the highest quality is designed to enhance your skill set, keep you informed, and motivate you to return to your therapy room and apply the knowledge you have acquired. Professional development hours are necessary for SLPs to maintain their ASHA Certificate of Clinical Competence (CCCs). Continuing education hours are also required in order to practice as a speech-language pathologist in the majority of states in the United States. It is important to be certain to verify the requirements of your state, as they may align with those of the American Speech and Hearing Association (ASHA) or may differ. It is important to be certain to verify the requirements of your state, as they may align with those of the American Speech and Hearing Association (ASHA).

The requirements for maintaining your ASHA CCC's as of 2023 are as follows:

The professional development hours you accumulate must be consistent with the field of speech-language pathology or audiology, and they may pertain to any aspect of clinical practice, as per ASHA requirements. Not only are speech pathology CEUs certified by ASHA or state speech and language associations eligible for hours, but professional development opportunities provided by other organizations may also count towards continuing education requirements.

The hours you accumulate should be sufficient to satisfy both ASHA and your state's requirements.

CEUs for speech therapy can be costly to acquire. The expense of obtaining speech pathology CEUs can accumulate unless you are fortunate enough to have an employer who covers the cost of your CEU hours. Some workshops can cost as much as several hundred dollars per course. To fulfil your requirement for hours without incurring excessive expenses, consider attending local workshops (which eliminate the need for travel expenses) or conferences that frequently permit the accumulation of numerous hours for a single-entry charge. Additionally, online courses and webinars are accessible (some are recorded for instantaneous viewing).

In addition, you may consult with healthcare organizations, educational support centres, or universities in your vicinity. They may sponsor professional development seminars or events that

provide CEU hours at a discount or for free (Speech Sprouts, 2023).

The importance of ongoing education in a rapidly evolving field

It is imperative to participate in continuous learning and ongoing education in disciplines that are rapidly evolving to maintain a competitive edge and advance in one's career. By staying informed about industry trends and developments, individuals can improve their job performance, adapt to changes, and expand their skill set. Lifelong learning is essential for demonstrating a commitment to personal growth, career resilience, and professional development. To preserve a competitive advantage in a fast-paced business environment, it is imperative to engage in educational opportunities, network with peers, and adopt new technologies. Employers value individuals who consistently invest in their professional development and adapt to the evolving job market. (The Importance of Continuing Education and Staying Up to Date in Your Industry, WindowStill, 2023) (The Importance of Continuous Learning and How to Stay Up to Date with Industry Trends and Developments., n.d.) (The Vital Importance of Continuous Learning in an Ever-Evolving Work Landscape, n.d.) (The Power of Lifelong Learning and Professional Development in Career Advancement &Mdash; TxGAP, 2024)

The benefits of continuing education for speech therapists include staying up to date on the latest research and techniques to provide the best possible care for clients. Continuing education for speech-language pathologists can offer advantages, including the enhancement of provider engagement in practice improvement and the enhancement of practice. It can also result in self-evaluation and quality assurance, which can ultimately enhance patient care (Megan & Heather, 2018; Finley, 1988).

The efficacy of these learning opportunities is not well understood, even though speech-language pathologists (SLPs) are required to partake in continuing education opportunities. This preliminary study provides an empirical assessment of how both the SLPs and their instructors perceive the impact of problem-based learning (PBL) CE activity on SLPs. Twenty-five seasoned SLPs attended a multi-day, intensive PBL workshop on juvenile apraxia of speech. The self-perceived clinical efficacy of the SLPs is significantly different between T1 and T2, as well as T2 and T3. Instructors assessed the clinical efficacy of the SLPs as "very good" to "excellent" at T3. SLPs reported more confidence, critical thinking, and enhanced assessment and treatment skills after the training at T3, according to qualitative data. The SLPs also said that this workshop was different from other CE models because of how much was learned, the availability of professionals and mentors during and after the educational experience, and the PBL-based teaching elements, such as the focus on small-group discussions based on real-life situations. The limitations, implications, and prospective directions of the study are addressed (Megan & Heather, 2018; Overby & Rusiewicz, 2018). Impact and Perceived Benefits of a Problem-Based

Learning Workshop for Continuing Education in Speech-Language Pathology: A Pilot Study. *Teaching and Learning in Communication Sciences and Disorders*, 2(1). The results of this pilot study provide evidence that the benefits and challenges of implementing PBL in continuing education for speech-language pathologists are addressed.

Improved clinical skills and knowledge enhance career advancement opportunities. "Speech therapists can enhance their clinical skills and knowledge through continuing education, which can result in more effective treatment plans and better patient outcomes." Additionally, it can improve career advancement prospects by ensuring that therapists are informed about the most recent research and techniques in the field" (Mataiti, 2008; Ann, 2003; Finley, 1988). It helps speech therapists stay up to date with the latest research and techniques. Speech therapists can remain informed about the most recent research and increase their chances of career advancement by enhancing their clinical skills and knowledge. To accommodate the developmental requirements of clinical educators at various phases, clinical educators must devise novel approaches to organizing and conducting professional development. This encompasses the enhancement of assessment abilities, relationship-building abilities, and an understanding of educational theory (y., 2005) (Finley, 1988).

Methods of Continuing Education for Speech Therapists

Speech therapists can continue their education through continuing medical education (CME) or continuing professional development (CPD) programs. Speech-language pathologists in nations like the United States must complete a certain number of continuing education units (CEUs) to maintain their certification, and professional associations like ASHA may audit them. Speech therapists need to stay updated with new technologies and methods through continuing education to enhance their practice" (Ashekian, 2024) and ensure they are providing the best possible care for their clients.

Online speech therapy courses can provide practical experience opportunities that are comparable to those of in-person courses." Research has demonstrated that telepractice is a viable method of service delivery for speech-language pathologists and audiologists, facilitating the provision of superior quality care in environments where physical presence is not possible. Furthermore, research has shown that online learning modalities, such as teletherapy, can be effective in the provision of treatment and interventions for individuals with speech and language disorders (Nomfundo & Joanne, 2021; Finley, 1988).

Conferences and workshops

"Conferences and workshops are important for Continuing Education Units (CEU) for Speech-

Language Pathologists (SLP) as they provide opportunities to learn about new research, techniques, and best practices in the field. Attending these events can help SLPs stay updated on the latest advancements and improve their skills" (Lancaster, n.d.).

"Conferences are crucial for PDU speech therapy because they offer opportunities for professional development and networking". PDU members are permitted to participate in emergency OTPD activities with a degree of flexibility, which enables them to obtain esteemed international certificates. Nevertheless, conducting in-house professional development activities can be a difficult task for PDU members, as it necessitates the coordination of venues for group gatherings and the management of infrastructure. The PDU process has the potential to facilitate the growth of both individuals and groups by encouraging them to expand their perspectives and develop the confidence necessary to influence others (Çetin, n.d.; Iain & Steven, n.d.; Kausar, n.d; Finley, 1988).

Online courses and webinars

A multistate group of state horse specialists conducted a study in which they compared webinars and online short courses. The study found that there were no differences in perceived knowledge gained from webinars or short courses, but participation in short courses may be more useful for making positive management decisions. Short course participants also reported greater potential for cost savings. Certificates were important for motivating participants to complete the courses and achieve higher completion rates" (Kathleen et al., 2020; Finley, 1988).

Mentoring and peer learning opportunities

Mentoring and peer learning opportunities can be effectively implemented through group mentoring programs that concentrate on topics that are pertinent to the requirements of learners, regardless of whether they convene in person or virtually. Organizations such as CDW have discovered that group mentoring is a cost-effective, relational, and rapid learning approach that encourages knowledge sharing and practical application in the workplace. Research indicates that the advantages of group mentoring can be improved by establishing groups based on the relevance of topics and offering opportunities for participants to reunite to observe the implementation of ideas (Emelo, 2011; Finley, 1988).

Mentoring programs contribute to career advancement by offering mentors advantages such as job satisfaction, organizational commitment, job performance, and career success. Psychosocial mentoring is linked to organizational commitment; career mentoring is linked to career success; and role modelling mentoring is linked to job performance. Providing mentoring support can result in mentors being more

satisfied and committed to their employment. To ascertain the long-term influence of mentoring on a mentor's career, longitudinal research is required. Mentorship programs have been demonstrated to have a beneficial effect on the job satisfaction and career advancement of employees. Promotions, salary increases, and access to higher-level positions are more probable for employees who participate in formal mentorship relationships. Mentorship also results in increased job satisfaction because of the emotional support, increased confidence, and clarity in career paths that mentors provide (Thomas, 2013; Finley, 1988).

Challenges and Barriers to Continuing Education

SLPs face a variety of obstacles in their pursuit of continuing education, such as a lack of support from employers or administration (11%), a lack of emphasis on teamwork in the workplace (10%), insufficient training to work collaboratively on teams (5%), and resistance from other SLPs (2%). Participants in a study indicated that they would be more inclined to participate in collaborative practices if their caseloads were reduced. SLPs who are in rural areas encounter distinctive obstacles, including professional isolation and scheduling complications. In comparison to suburban or urban SLPs, rural SLPs report that they receive less professional support and have limited interaction with colleagues or supervisors. Common obstacles to effective collaboration with classroom instructors for SLPs, particularly in rural settings, include professional isolation, scheduling, and time constraints (Kastner, 2021; Finley, 1988).

Time constraints and balancing work-life responsibilities

Working time flexibility can affect the balance of work and life responsibilities. Individual-oriented flexibility has a positive impact on work-life balance, whereas organization-oriented flexibility may have a negative effect. According to research, the consumption of personal resources and the subsequent negative impact on work-life balance can result from high temporal flexibility requirements, such as overtime or weekend work. Achieving a satisfactory work-life balance is advantageous for both personal and professional well-being, underscoring the significance of striking a balance between work and personal life (Anne et al., 2020; Finley, 1988).

Financial constraints for attending conferences and courses

With the scarcity of qualified SLPs in a variety of settings, financial constraints can present a challenge for attending conferences and courses for SLPs. " Collaborations between institutions and school districts to offer training opportunities for SLPs and on-the-job training programs are among the

solutions to this shortage (Squires, 2013; Tucker, 2012; Finley, 1988).

Lack of awareness of available opportunities

In Armenia, there are efforts to modernize the medical education system to advance professional development and align with European CME/CPD requirements, but currently, there is no regulated CME program for speech therapy. Speech pathologists in Armenia do not have mandatory postgraduate education or license renewal restrictions like in developed nations. Establishing a unified system of continuous education for speech therapists in Armenia is essential to keeping up with advancements in the field (Ashekian, 2024) and ensuring that patients receive the best possible care.

CONCLUSION

Continuing education is essential for speech therapists, particularly those who are newly qualified and work with children who have cerebral palsy. Therapists can gain valuable hands-on experience and knowledge from short practical training courses, which can help them feel more prepared to work with complex conditions in low-resource settings. To improve the abilities of speech therapists, the courses should emphasize interprofessional learning, holistic approaches, and profession-specific topics. Forming virtual communities of practice, mentorship programs, and postgraduate-focused brief training courses for ongoing professional development are among the recommendations (Takondwa et al., 2020; Finley, 1988).

Call to action for speech therapists to prioritize ongoing learning.

Speech therapists should prioritize ongoing learning to support children's access to learning opportunities and development across domains by altering environmental elements. Collaboration between teachers and speech therapists is crucial to identifying and supporting children with speech, language, and communication needs throughout their school years (Jane et al., 2015; FAMILY, n.d.; Finley, 1988).

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EVALUATING THE IMPACT OF CHESS LEARNING ON CHILDREN WITH AUTISM SPECTRUM DISORDERS

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ABSTRACT

Chess Scientific Research Institute examined the impact of learning chess on children with Autism Spectrum Disorders (ASD). Using a mixed-methods approach that combined qualitative data collecting and quantitative analysis, it sought to determine how chess affects these kids' cognitive, social, and behavioral development. The results showed that although children with more developed verbal skills had more excellent chess development, behavioral features, and other factors also had a significant impact on their learning outcomes. Eye contact and engagement levels varied even when communication and social interactions improved. The study emphasizes the need for more research and individualized teaching strategies to prove that chess is a valuable tool for helping kids with ASD.

Keywords: *chess education, Autism Spectrum Disorder (ASD), cognitive development, social skills, behavioral traits, special educational needs (SEN), verbal communication, personalized teaching*

strategies.

INTRODUCTION

Chess has garnered academic interest as several studies have contended and demonstrated (Mohammad, 2015) that chess abilities enhance academic performance owing to their applicability in various domains (Smith, 1998). The meta-analysis undertaken by Gobet et al. (2017) highlights how chess training can positively impact cognitive skills, including spatial orientation, which can benefit children with autism. Researchers have found correlations between chess knowledge and experience, attention, pattern recognition, spatial and logical thinking, and other cognitive capacities (Ferreira & Palhares, 2008; Horgan & Morgan, 1990; Saariluoma, 1984).

Sigritmac (2012) evidenced the beneficial effect of chess on the conceptual learning advancement of six-year-old youngsters, revealing no significant disparities between male and female participants. Chess can be a valuable resource for students on the periphery; it may be a practical component of mathematics instruction for those receiving special education assistance (Barrett et al., 2011).

While researchers underline the cognitive and academic benefits of chess, there is a significant inconsistency between the practical steps in teaching chess to children with autism spectrum disorders and its theoretical and empirical scientific justification, which is the primary reason for the importance of this research problem. The issue lies in the fact that while many practitioners and professionals addressing these issues acknowledge the connection between chess and autism, there is a dearth of scientific research in this area. For instance, a Dutch psychologist and journalist, Karel Van Deft conducted a thorough analysis of the connection between chess and autism. They concluded a significant lack of international research in this field (Van Deft, 2010).

The purpose of the current research is to explore the impact of learning chess on the development of children with autism spectrum disorders (ASD) from the perspective of the project participants.

The evaluation research was undertaken within the FIDE “Infinite Chess” project, which “aims to increase knowledge and awareness of chess for children with autism spectrum disorder (ASD), give practical advice to teachers and parents, study the benefits of introducing to chess and develop various teaching methods” (<https://infinitechess.fide.com/>)

Research Questions

- 1) What is the impact of chess teaching and learning processes on the cognitive and behavioral development of children with ASD?
- 2) How can chess instruction improve the social interaction skills of children with ASD, and

what strategies are most effective in this process?

3) What is the overall impact of learning chess on children with ASD in terms of cognitive, emotional, and social development?

LITERATURE REVIEW

Chess, with its various features, has become an effective means for discussing and solving these issues. In addition to its cognitive value, chess also holds value pedagogically and socially (Aciego, et al., 2012), as it fosters the development of social competencies such as socializing, patience, perseverance, respect for the opponent, and self-control. Including so many skills and competencies in a single board game renders chess an excellent choice for social, mental, and educational settings.

Since chess became a compulsory subject in the Republic of Armenia's primary school curriculum, Armenian scientists have conducted numerous studies. Scientific works have focused on the impact of chess on cognitive and intellectual development (Sargsyan et al., 2016), the effectiveness of chess in education (Mirzakhanyan et al., 2017), the social-psychological analysis of factors affecting chess education (Sargyan et al., 2021), and other related topics.

The overview and analysis of the inclusive working group of the Chess Research Institute conducted by Charchyan and Karapetyan (2022) underscore the influence of chess on children's cognitive, and social-emotional development, and behavior. They emphasize the necessity for continued study to substantiate chess as a therapeutic approach and a resource for assisting students with specific educational needs.

Additionally, CSRI researchers emphasized that "chess as a general education subject has great potential for the development of children," according to research in chess education (Gevorkyan et al., 2023, p. 129).

When discussing the benefits of chess training for children with autism spectrum disorders, experts (Schwartz & Golden, 2015) primarily highlight its ability to foster social interaction. The study showed the effectiveness of unique psychological-pedagogical methods in developing spatial orientation.

Another chess instruction intervention in the United States that lasted thirty weeks evaluated the mathematics achievement of thirty children with health, auditory, learning, emotional/behavioral, speech, or autism impairments who regularly received special education services (Barrett & Fish, 2011).

According to researchers (Greenspan, 2006; Baron-Cohen, 1995), children with autism do not join in with others in typical pretend play situations but may be able to "imagine" within their narrow play routines. They have the most difficulty learning in new situations, problem-solving, and broadening interests outside the ones that dominate their thinking and behavior.

Differences in the play of children with ASD can affect their behavior. If a child with ASD is unable to independently engage in typical play behavior, they may miss the benefits of play, which leads to enhanced cognitive, social, and emotional skills. Impairments or delays in these key areas will likely result in challenging behavior as the child attempts to communicate and meet their needs (**Thornton & Cox, 2005**).

Research indicates that autistic children can learn to play-act if prompted (Sherratt & Peter, 2002). They proposed that the child may initially imitate the caregiver's conduct. Studies also indicate that this behavior can evolve into functional play by incorporating predictable play routines and explicit instruction. As the child's comprehension matures, they may begin to participate in play with peers and exhibit more significant consideration for their emotions and goals. Consequently, Sherratt and Peter (2002) delineated essential principles for instructing play sequences. These included:

- Any play sequence can utilize a simple narrative structure.
- Teachers are leading the play.

Researchers (**Phillips & Beavan, 2007**) suggest using “Identiplay” as a form of play for children with ASD. It involves a table divided into two, two chairs, a pack of toys, and a typed script. Observing the child's free play and skill level before using “Identiplay” to ensure the toys are appropriate for their level is crucial. We found some similarities between chess and “Identiplay”'s arrangements as a possible area for future research.

Researchers have not yet shown interest in chess as a psychological support tool. Researchers and practitioners sometimes describe an extensive range of symptoms while trying to understand the main benefits of chess. Deep and systematic studies in this direction can reveal the great potential of the chess game in working with children with autism spectrum disorders while also significantly expanding scientific understanding of the characteristics of these children's behavior.

1 METHODOLOGY

The research was organized according to the "step-by-step" method. The procedure commenced with formulating the research's primary ideological element, encompassing identifying the problem and hypotheses and articulating research questions. The procedure thereafter involved the development of tools, execution of tests, and performance of fieldwork, concluding in data analysis. This concise overview of the research implementation process encompassed concurrent efforts by the “Chess” Scientific Research Institute team, the FIDE “Infinite Chess” (<https://infiniteschess.fide.com/>) team, and participating experts. The team executed the task collaboratively, ensuring continuous active communication, as several phases of the activity were interrelated and interdependent, thereby

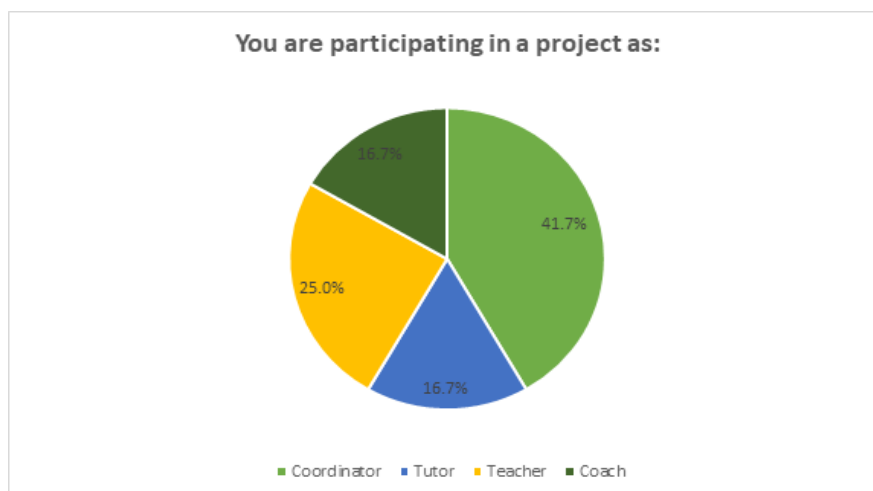
exercising collective oversight. We conducted weekly meetings during the research to discuss ongoing projects and revisions, among other subjects. We had additional sessions to resolve concerns necessitating immediate attention. We offered both the preliminary and conclusive research materials.

The study used a mixed-methods approach, combining secondary data review with qualitative data collection methods to gain deep insights, meet all the assignment goals, and ensure that the data sources and collection methods were checked three times.

We used the purposive sampling method, which includes the entire group—in this case, representatives from all countries participating in the "Infinite Chess" project. Such a sample has high reliability and minimal error probability and represents the entire study group. A multi-layered approach was used. The first layer of the research sample encompassed all project-participating countries, from which the coordinators from each country formed the second layer, followed by the teachers and trainers in the third layer. The mentioned layers form a standard chain, which can be superimposed or subordinate to each other based on their functions. However, all informants in this study provide information of equal value. We have defined a unified program and toolkit to ensure the universality of the sampling. We carried out preliminary universalization and testing of the research tools to neutralize the cultural, gender, age, professional, competence, and experience differences of the informants participating in the research. Target groups for the research program include trained lecturers, tutors, and teachers from chosen institutions with experience working with children with ASD. A methodological guide (Popova et al., 2021) for teachers to conduct chess classes when working with children with autism spectrum disorder has been developed before delivering chess to the students.

Diagram 1.

Project participants.



The research sample includes all the specialists planned by the project. The percentage ratio shows that the overwhelming majority of participants were coordinators (42%), followed by teachers (25%), tutors (17%), and coaches (17%) (Diagram 1).

The table below mentions the number of coordinators, tutors, coaches, and teachers involved in the project in each region.

Table 1.

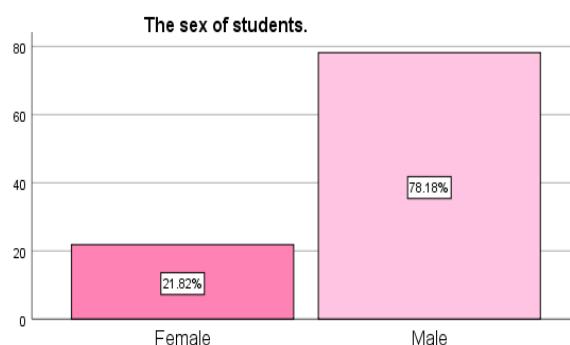
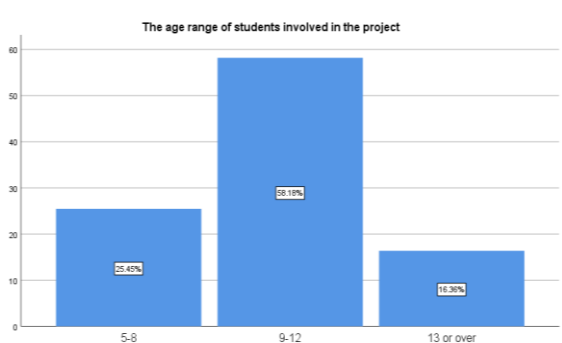
Number of assistive staff.

Please mention how many coordinators, tutors, coaches, and teachers are involved in the project in your region.				
Country	Coordinators	Tutors	Coaches	Teachers
Gibraltar	1	2	3	1
Spain	2	3	4	3
South Africa	1	1	1	1
Turkey	2	-	-	1
Total	6	6	8	6

As a rule, the mentioned group of specialists is sufficient to conduct chess courses with children with ASD. Further, the primary information about the children involved in the project is presented.

Diagram 2.

Demographic data.

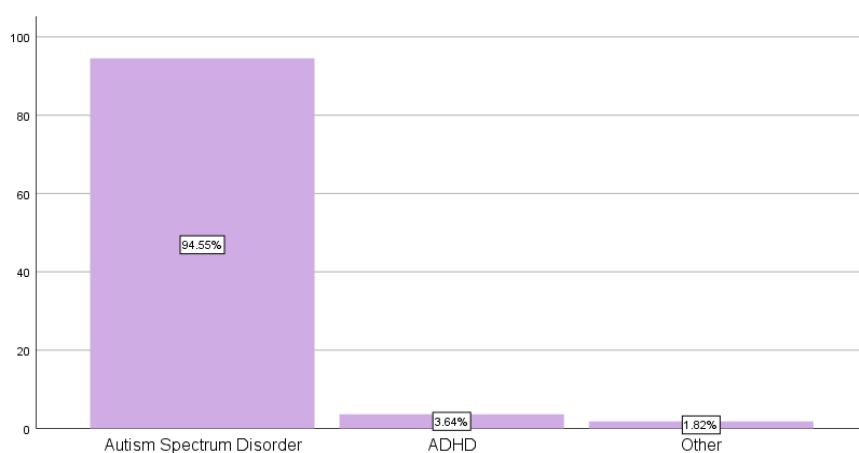


The majority of participants are children from 9 to 12 years old (58%), less than half are in the 5-8 age range, and the fewest are 13 or over. As is common in general autism statistics, 78% are boys, and 22% are girls (Diagram 2).

Participants report that the vast majority of students have autism spectrum disorders as introduced in Diagram 3.

Diagram 3.

Number of children with ASD.



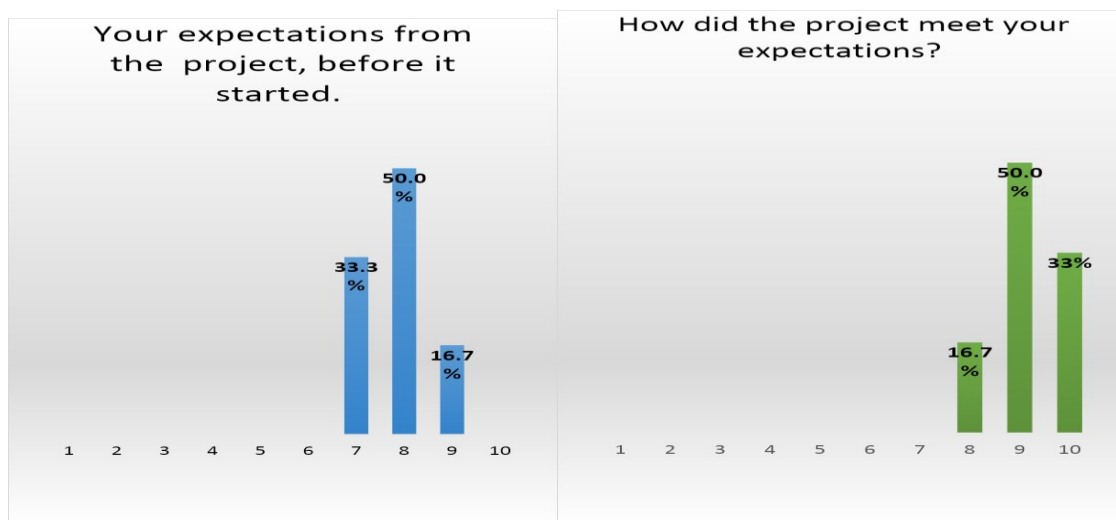
2

3 RESULTS

The two presented figures graphically show that the expectations from the project were quite high, for example, half of the respondents rated it with 8 points. And to what extent those expectations were met, it becomes clear from the next figure, where it can be seen that, in general, the expectations were exceeded, for example, one third of the respondents scored 10 points (Diagram 4).

Diagram 4.

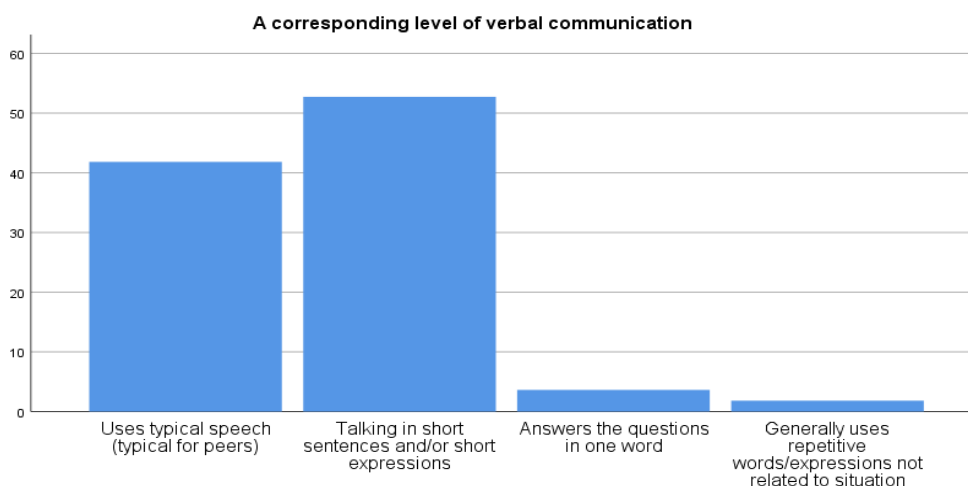
Expectations of the participants.



The influence was revealed in several directions by extracting the manifestations of social interaction, behavioral and emotional features. In order to evaluate the progress of children involved in the project, the initial level of their skills have been identified based on survey responses.

Diagram 4.

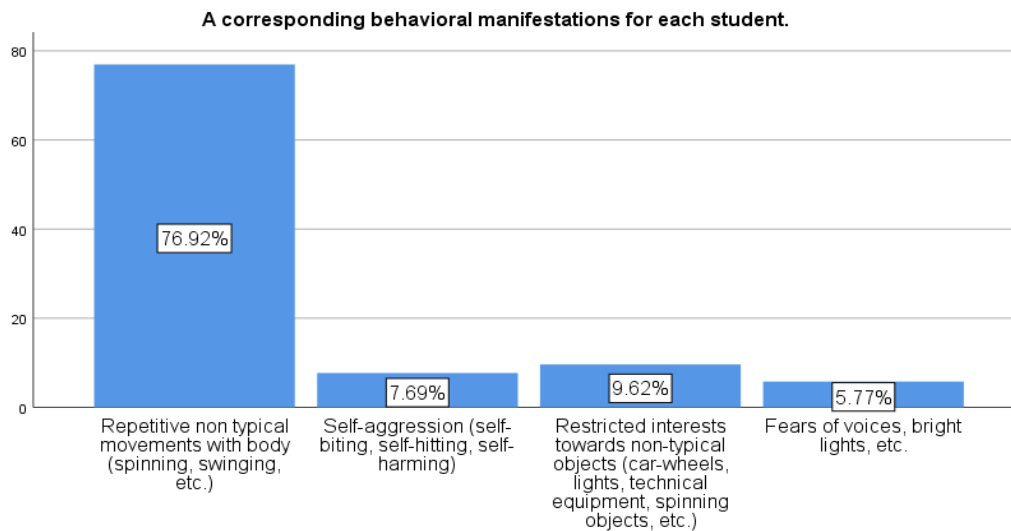
Level of verbal communication



There were several requirements for involving children in the project. And one of these requirements was the level of their verbal communication. As depicted in Diagram 4, most of the students were able to use typical speech or communicate in short sentences and expressions. But also there were cases where students were limited in their verbal skills, such as the situations of answering the common questions in one word or using repetitive words and expressions.

Diagram 5.

Behavioral manifestations of participants.

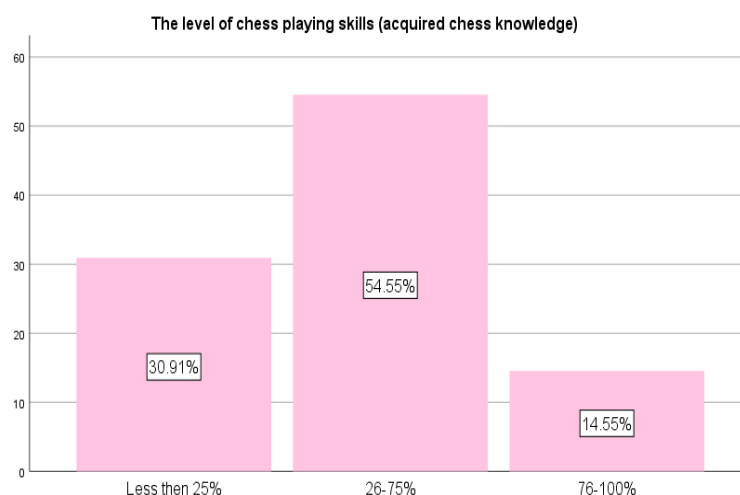


What comes to behavioral patterns (Diagram 5), the most common manifestation was the repetitive behavior in forms of non-typical body movements. The other forms of usual behaviors for ASD, such as self-aggression, restricted interests and fears have been observed relatively rare (8%, 10% and 6% accordingly).

On the diagram 6 the results of acquired chess knowledge is presented. Only 15% of students have achieved the highest level of chess knowledge based on the guideline. In terms of activities this is the level of independently playing the game (even with errors).

Diagram 6.

Chess playing skills

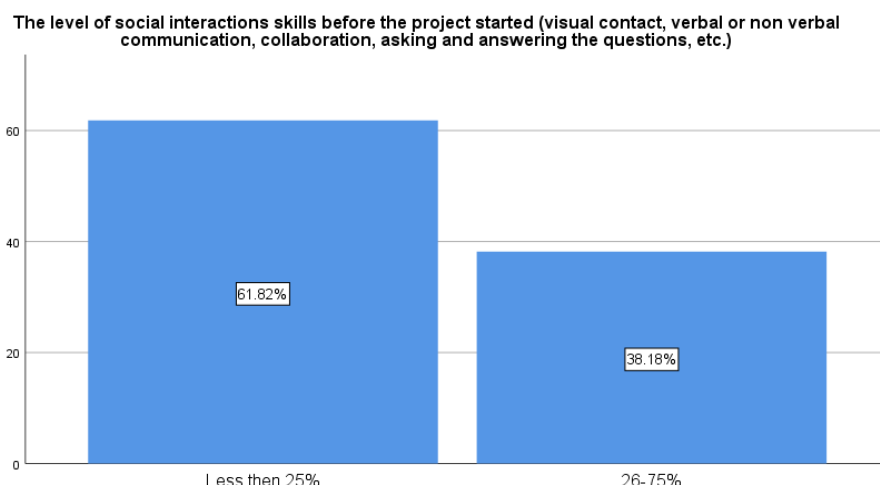


About 55% of children's progress in chess has been evaluated in the range of 26-75 (from 100). These results show that in general the recommended chess level is relevant to abilities and potential of most of the students. But apparently not for all, as 31% of participants have acquired just less than 25%

of provided chess materials.

Diagram 7.

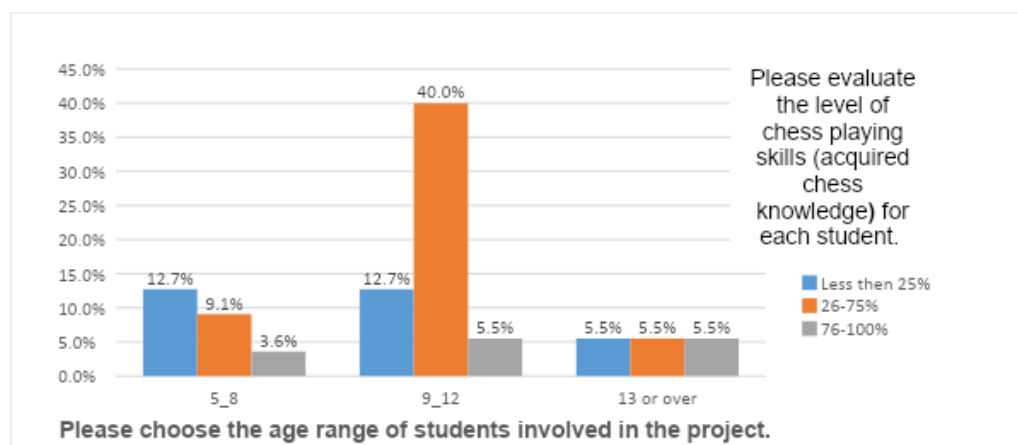
Level of social skills



Evaluating the social interaction skills before the project started, the coordinators mentioned that most of the students had lack in the sphere. In particular 62% of them had been assessed as having less than 25% of these skills (Diagram 7).

Diagram 8.

Evaluation of chess playing skills in relation to age



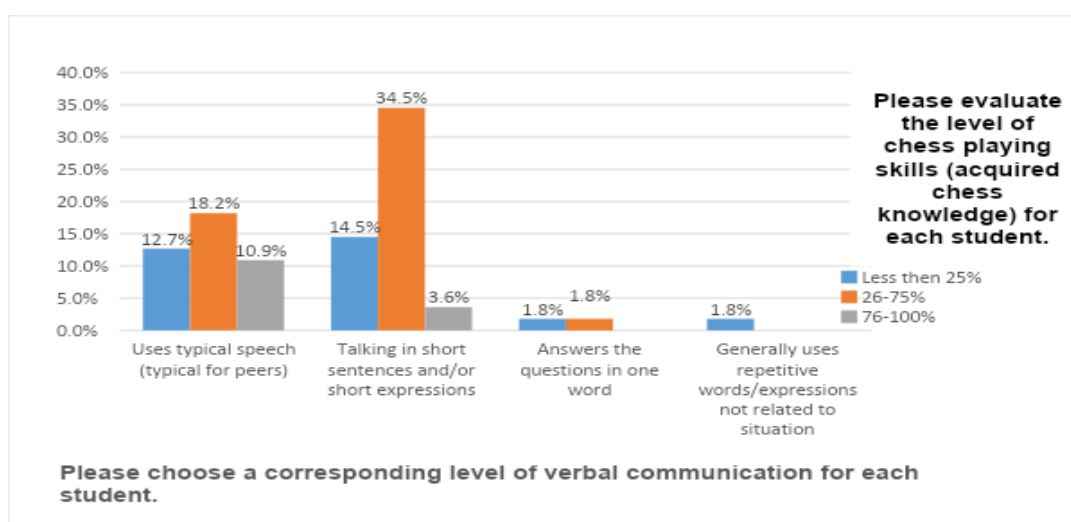
One thing that can be assumed from the diagram 8 is that children with ASD from 9-12 years old are more likely to manifest good performance in learning chess and this is the age range we believe well-designed interventions may affect better results.

Diagram 9 shows children's performance in terms of learning chess content during the project. As it is presented here, just about 10% of children with ASD have shown the highest results of chess playing

skills. Most of them (more than 50%) have middle performance. One evidence that has attracted our attention is that 2 children with ADHD have been involved in the project and both have been assessed with higher levels of acquiring chess skills.

Diagram 9.

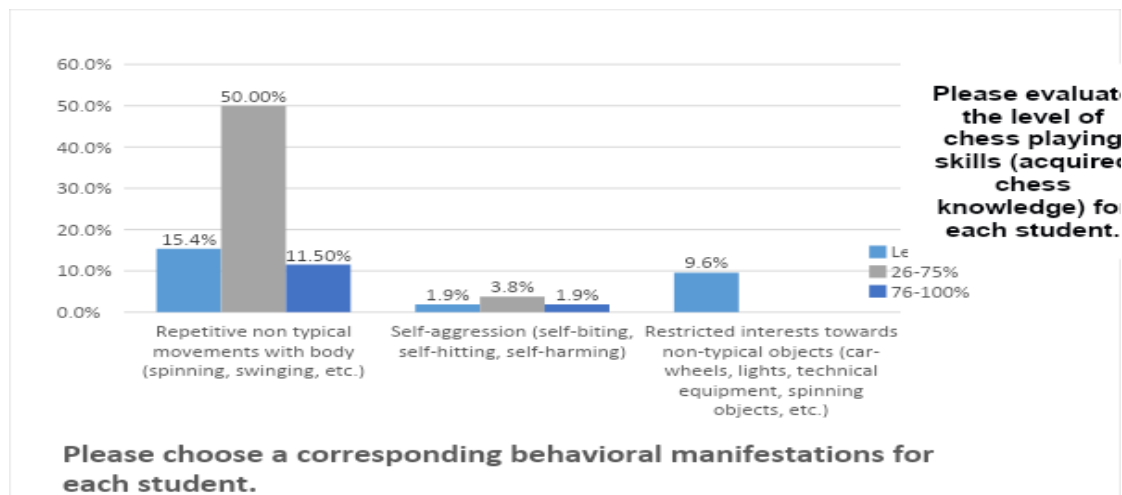
Evaluation of chess playing skills in relation to communication skills



The results shown in Diagram 9 are controversial. On the one hand, it is visible and logically predictable, that level of verbal communication correlates with chess-playing skills performance. More children with typical speech have performed well in chess than children with restrictions on verbal skills. On the other hand, we can see that 12.7% of children with typical speech have performed lower than 25% in chess. That allows us to assume that verbal skills are necessary, but not sufficient for acquiring chess knowledge, so other factors should be considered as well.

Diagram 10.

Evaluation of chess playing skills in relation to Behavioral manifestations

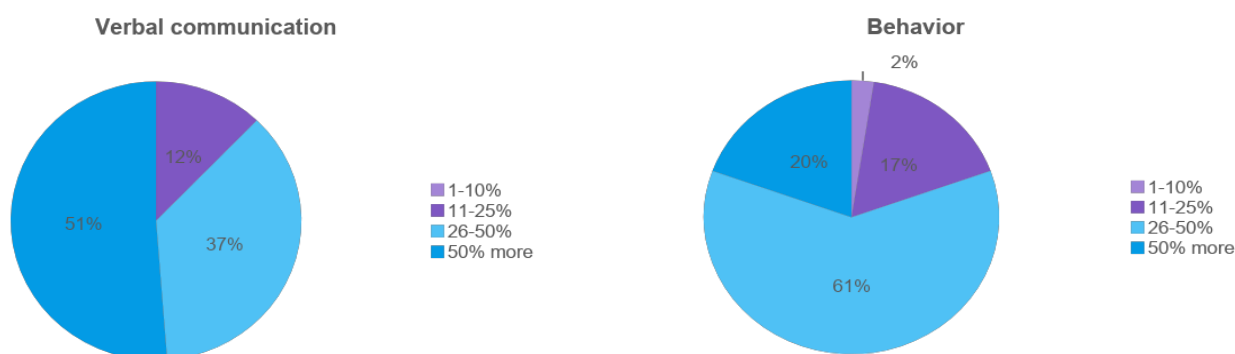


Another remarkable finding about the correlation between chess and manifestations typical of ASD is presented in Diagram 10. We can see that repetitive manifestations in behavior affect the level of acquired chess skills. But here we would like to emphasize the impact of restricted interests on the level of learning the content. All the children with restricted interests in non-typical objects have the lowest achievements in acquiring chess skills.

By the end of the project, the progress of each student in each field of skills that has been initially observed has been evaluated once more. Near in diagrams, the results of students' progress are presented.

Diagram 11.

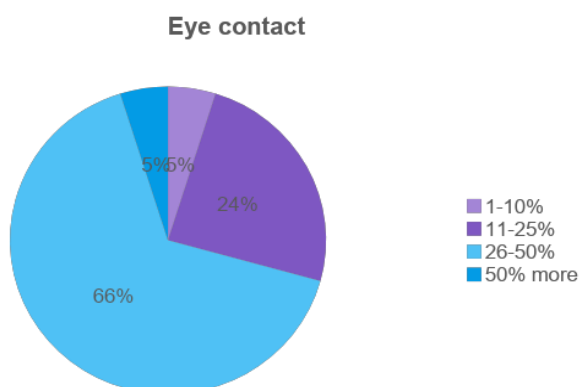
Verbal communication and behavioral factors



All the experts have confirmed that after a short period of time the students have progressed in their verbal communication mostly from 26 to more than 50%. And while discussing the main reasons for this, everyone agreed they have improved their communication correspondingly to the environment becoming familiar and safer for them. Accordingly, the behavior has increased to more compliant and enthusiastic manifestations, mainly following the instructions and concentrating on teachers' explanations (Diagram 11).

Diagram 12.

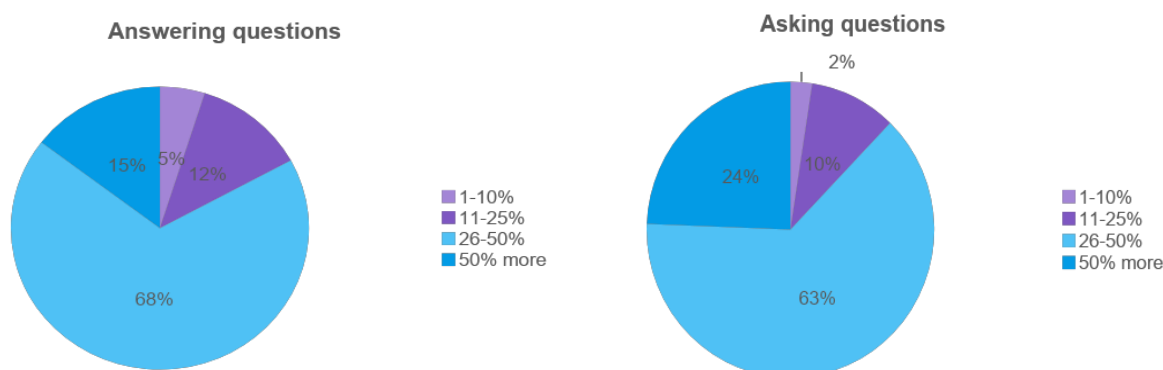
Eye contact



Meanwhile, the students haven't progressed so well in having eye contact, as the experts mentioned that by the end of the program it increased to not more than 15 seconds for the majority of the students (Diagram 12). On the other hand, in comparison with the first lessons, while there even were no eye contact, these results are really impressive. Although here again we can see mostly the contribution of the environment, rather than the activities.

Diagram 13.

Questions and answers.



The students had significantly enhanced their question-asking and answering skills, but mainly during the communication with the teacher. Only some of the participants have demonstrated the same skills both with teachers and classmates and what is also important, that communication is mainly connected to the lesson situations. Overall, the students have created good relationships with teachers and classmates, some of them were even trying to teach others, while the others know they can learn also from these "veterans". Meanwhile, some children still avoid physical contact, but communicate

verbally.

4DISCUSSION

The overall summary of the survey results is following:

- The level of acquiring chess knowledge correlates with the age, level of verbal communication, and restricted interests of students involved in the project.
- As a result of chess lessons has been observed a progress in students' communication, behavior and relationship spheres, which are mostly interpreted as a result of an environment that became safe and comfortable during the project process.
- The participants of surveys and interviews agree that the time of the first stage of the project was too short to achieve stable progress.

The results of the interviews have been analyzed in accordance with criteria of project challenges, good practices and benefits of learning chess.

Taking into account that the majority of participants considered the children's emotions of joy and happiness as an important indicator of the progress of the project, we propose to introduce mechanisms during the project evaluation that will enable the objective evaluation of these indicators along with the feedback tool.

To successfully teach chess to a broader range of children, it is important to consider alternatives to using only verbal communication during lessons. Best practices in educational research (Chen, et al., 2023; Cucinotta et al., 2024) suggest that the more senses engaged in the learning process, the higher the likelihood of success for all students. Research indicates that incorporating methods like the “Identiplay” approach, as suggested by Phillips and Beavan (2007), can be valuable in aligning the game of chess with the specific needs of children with autism.

Survey results involving 55 participants (45 boys and 10 girls) revealed that children with typical speech abilities generally performed better in chess than those with verbal restrictions. Storey (2000) advocated that playing chess strengthens these skills. However, it was also observed that 12.7% of children with typical speech scored below the 25th percentile in chess performance. This finding implies that while verbal skills may be important, they are not solely sufficient for acquiring chess knowledge; other factors must also be considered.

Research has demonstrated that chess can improve students' patience, perseverance, concentration, and creativity (Smith, 1998). This project holds significance as it introduces a novel topic in the research field, specifically examining chess instruction for students with ASD.

One notable observation from the study is that repetitive behaviors and restricted interests

significantly affect the acquisition of chess skills. Children with a narrow focus on non-typical objects tended to show the lowest levels of chess proficiency, highlighting the need to address these specific challenges in the teaching process.

Successful experiences were often linked to personalized approaches, combining both individual learning and teamwork, which contributed to better engagement and progress. Participants also noted that while children enjoyed solving problems, their enthusiasm did not always extend to the game itself, emphasizing the need to showcase the inherent benefits of learning chess.

Participants stressed the significance of assessing each child's progress and the difficulties in measuring success accurately. Effective practices highlighted during this process included collaboration with specialists, adapting chess materials to meet individual needs, and integrating the game as part of a comprehensive educational strategy.

Cooperation emerged as a key theme during the interviews and surveys, with particular emphasis on challenges related to engaging parents and involving multiple specialists in the learning process. These findings support the necessity of implementing interventions like the DIR/Floortime methodology in 1979, which is currently one of the most effective methods for working with children with ASD. Work on external behavior and symptoms is not the main goal of therapy within the framework of the DIR concept and the "Floortime" method (Greenspan, 2006). First and foremost, they focus on laying the groundwork for the child's healthy development when open communication among educators, specialists, and families is a crucial element.

A cause-and-effect framework for action was developed based on thematic analysis, highlighting the importance of smart planning, comprehensive assessments, and continuous cooperation with the professional community and parents.

The experts noted that, over a short period, students showed notable progress in verbal communication, with an increase from 26% to over 50%. However, improvements in eye contact were less significant, with most students managing no more than 15 seconds of sustained eye contact by the end of the program. Overall, the students demonstrated significant enhancements in their question-asking and answering abilities, primarily during interactions with their teachers. Behavioral indicators, such as relationship-building and verbal communication, improved considerably, with increases of up to 51% in some areas, underscoring the positive impact of chess instruction on social and cognitive development.

5 CONCLUSION

Chess teaching affected kids with ASD more as the experiment proceeded. We found key factors that determine chess's developmental value for these children by carefully examining qualitative and

quantitative data. The main findings and their implications for teaching are summarized below:

The extent of speech development is essential for acquiring chess abilities. Children with enhanced verbal skills tend to comprehend chess principles more rapidly, indicating that linguistic development can substantially affect cognitive processing and the strategic thinking necessary for the game.

Behavioral traits significantly influence chess proficiency. Various behavioral manifestations, like repetitive activities or restricted interests, might either impede or facilitate a child's capacity to concentrate, adapt, and participate in the game. Comprehending these subtleties is essential for customizing chess education to address individual requirements.

The project participants unanimously agree that chess positively impacts children with ASD, although they concede that the specific processes via which chess affects cognitive and social development are still ambiguous. Additional research is required to comprehend how chess induces these advantageous transformations in domains such as problem-solving, social engagement, and emotional regulation.

The integration of personalized education and cooperation in chess classes, coupled with active engagement with parents and the wider professional community, has demonstrated significant efficacy. Creating tools such as progress diaries not only facilitates children's educational development but also substantially improves the project's durability and effectiveness.

The project has resulted in a significant enhancement in multiple facets of children's conduct, encompassing their capacity to inquire and respond, sustain eye contact, engage in verbal communication, and cultivate positive relationships with peers. These advancements illustrate the transformative capacity of chess when included in a systematic educational framework.

The pleasure of children and the quality of their communication and interactions were identified as crucial measures of the program's effectiveness. Facilitating an attractive and socially engaged learning experience is crucial for motivating children and cultivating a supportive environment that promotes their development.

Prioritizing personalized teaching strategies, systematic assessment, and active collaboration with all stakeholders - such as educators, parents, and specialists—can result in substantial improvements in children's cognitive, social, and communication abilities. This comprehensive technique not only aids children with ASD in the near term but also establishes a foundation for their long-term growth and integration into wider social and educational environments.

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