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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 interweave 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

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ANALYSIS OF SCHOOL CURRICULA IN TERMS OF REFLECTION ON THE DEVELOPMENT OF SELF-CARE SKILLS TO MENTALLY RETARDED SCHOOL CHILDREN

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ABSTRACT

A focus on self-care skills fosters an environment where all children, regardless of ability, can participate and contribute to the classroom community. The formation and development of self-care skills for children with mental retardation during school years is an important and integral part of the overall system of preparing them for study in inclusive settings, independent life and work to the possible extent.

At the same time, literature data, work experience of teachers and special educators working in inclusive schools, as well as our observations show that for children with mental retardation, especially in the lower grades, the acquisition of theoretical knowledge and practical skills and self-care skills in various types of daily activities (game, educational, work, etc.) presents significant difficulties. The possession of these skills is important for these children not only during school but also after graduation.

The significance of the problem under study also increases because today in Armenia the shift to inclusive education is a reality and children with various needs study together. This requires children's independence, sufficient social behavior skills, spatial orientation skills, high-quality performance and many other self-care skills in a wide variety of areas of activity. The level of development of these skills largely determines the success of inclusion and adaptation of these children among their classmates.

Considering the above mentioned, it becomes important to study and analyze school curricula for various disciplines in grades I-IV in terms of how they reflect issues of education and the development of self-care skills for children with mild and moderate mental retardation. This will help to clarify the positive and negative aspects of these programs, the degree of their direct or indirect connection with the issues of developing self-service skills in these children, and to develop appropriate proposals for their improvement.

Keywords: *skills, mental development, physical education, self-service skills, inclusive education, children with mental retardation, school curricula analysis, independence in children, social*

behavior skills, spatial orientation skills, educational inclusion, adaptation in inclusive settings, grades I-IV curriculum, daily activities skills development, teacher experiences in inclusive education, curriculum improvement proposals.

INTRODUCTION

The early elementary school years (grades I-IV) are a critical foundation for all children's development. For children with mild and moderate mental retardation (MMMR), this period holds particular significance. While acquiring core academic skills is important, fostering self-care skills is equally crucial for their future independence and well-being. This article delves into the vital role of school curricula in achieving these goals.

We will analyze existing curricula across various disciplines, examining how effectively they address the educational needs of children with MMMR. Specifically, we will explore how these curricula integrate the development of self-care skills alongside traditional academic content. By critically evaluating current practices, we aim to identify areas for improvement and highlight strategies to create more inclusive and empowering learning experiences for children with MMMR.

This analysis is crucial for several reasons. Firstly, a well-designed curriculum can equip children with MMMR with the tools they need to navigate daily life successfully. Secondly, by fostering self-care skills early on, we can promote a sense of self-confidence and independence that will benefit them throughout their lives. Finally, a curriculum that effectively addresses the needs of children with MMR fosters a more inclusive learning environment for all students (Wang, 2019; Zitomer & Goodwin, 2014; Gladkaya, 2003).

At the same time, it is extremely important through passing quite a long way and implementing universal inclusive education in the Republic of Armenia, to realize that the problem continues to be more than actual since it can generally be stated that in the regions where the transition to universal inclusive education model has been already done the serious difficulties are existing (Harutyunyan, 2023). Most children with MMMR remain in unclear situations, while very few aspects of school education reflect their self-care activity development and the academic part is quite doubtful. The implemented model almost has no grounds, the preparatory work was not carried out or was implemented very incompletely and superficially: the system has changed in one day, and the system running rings have increased or decreased. Here new approach is needed already for the running system adjusting and new calculations for providing necessary support for the transition period (Harutyunyan, 2023).

Self-care skills are fundamental for children in inclusive schools. They empower students to participate actively, build stronger relationships, and contribute to a positive and inclusive learning

environment (Wilhelmsen & Sørensen, 2017; Wang, 2019). By fostering self-care skills, inclusive schools create an environment where children with disabilities feel empowered and capable. This aspect should be highly respected and included in school programs at different levels and within the frame of various subjects (Wilhelmsen & Sørensen, 2017).

Through this exploration, we hope to contribute to the ongoing dialogue about creating effective and empowering educational experiences for children with MMR in grades I-IV.

EXPLAINING THE STATE OF THE ART OF THE PROBLEM

Children with moderate disabilities face unique challenges in developing and practicing self-care skills. Here are some key aspects to consider related to areas of self-care: basic needs (dressing, hygiene, eating), communication (verbal, non-verbal), mobility (physical therapy, adaptive equipment), emotional regulations (identifying triggers, developing coping mechanisms) (Heward, Alber-Morgan & Konrad, 2018). By acquiring self-care skills, children with disabilities gain a sense of accomplishment and control over their daily lives. This fosters their greater independence, as they become less reliant on constant assistance for basic needs. At the same time, it improves a child's self-esteem, and mastering self-care tasks boosts their confidence and self-reliance. Self-care skills enable children to participate more actively in daily activities which enhance their quality of life. Overall, self-care empowers children with disabilities to take charge of their lives, fostering a sense of independence, improved well-being, and a foundation for a fulfilling future (Wilhelmsen & Sørensen, 2017).

The program in 2000 included 13 main sections: personal hygiene, clothing and footwear, family, housing, transport, organizations and enterprises, economics, etc (Grenier, Patey & Grenier-Burtis, 2022). From grades V-IX, 68 hours were allocated for each year of study for this subject. The educational material of each section was presented according to the following structure: topic, practical work, basic requirements for the knowledge and skills of students children with mental retardation.

At the same time, from class to class, both the topics presented, the content of the educational material, and the requirements for the knowledge and skills of these students became more complex.

An Armenian translation of a program called "Social and Everyday Orientation" used for many years by teachers in special schools across the republic has been significantly cut down. This includes both a reduction in the number of program sections and the amount of teaching materials and time allocated to completing it.

In general, noting the importance of these programs for the development of social and everyday orientation of these students in grades V-IX, it should be emphasized that they were not very suitable for the development of self-care skills for students in grades I-IV.

Firstly, these programs did not have a separate section on self-care, and secondly, such sections

of the “Social and Everyday Orientation” program as “Transport”, “Communications”, “Employment”, “Trade”, were very complicated for students with MMR, and as practice shows, these children almost did not use these services without external support.

Consequently, for MMR students in grades I-IV, the main goal of these programs was not solved. And, thus, preparing these children for practical independent life, and, first of all, in the field of self-care failed.

There's no self-care program specifically designed for these elementary school students. Because of this, teachers in special, inclusive and regular schools have to rely on one of two options: a translated Russian program meant for older students (V-IX grade) that focuses on daily life skills, or their knowledge and experience.

Naturally, such an approach cannot provide a solution to the main task facing these schools - the education and development of self-care skills in mentally retarded primary school students, aimed at preparing them for independent life.

In the aspect of the problem under study, we also studied and analyzed school programs for students of grades I-IV in the disciplines “Technology”, “Physical Education”, “Mathematics”, “Drawing” and other subjects, as well as interdisciplinary connections in teaching these students skills and self-care skills.

Literature data and the work experience of teachers indicate great opportunities for general education subjects and interdisciplinary connections for learning and consolidating acquired theoretical knowledge and practical skills in self-care and developing independence in these children.

DATA COLLECTION AND ANALYSES

Within the frame of this study, we have studied and analyzed school programs for grades I-IV in the subjects of “Technology”, “Physical education”, and “Maths”. The research questions were formulated as follows:

1. *Is there a section on self-care?*
2. *How are the issues of teaching self-care skills reflected in the educational material?*
3. *How the material of self-care is distributed among classes in the curriculum?*
4. *What sections of self-care are directly or indirectly reflected in the subject curriculum?*
5. *How are self-care issues reflected in other subject curriculums: Maths, Drawing?*
6. *What are the interdisciplinary connections for teaching and consolidating self-care skills for MMR?*
7. *Do school programs for grades I-IV contain educational material that promotes the education and development of self-care skills in this group of children?*

Based on the objectives of this study, we also studied and analyzed the school program “Social Everyday Orientation” for students for grades V-IX with mental development problems, which was actual until 2012. Today, instead of this program, these classes include the subject “Basics of Life”, and for students of grades I-IV - the subject “Technology”.

Unfortunately, in all types of educational schools in Armenia (special, inclusive, regular) there is no special subject concentrating on self-care programs for these students.

But as noted above, for three decades in a special school, a program for social and everyday orientation for students of grades V-IX was acting during the Soviet period. This program was translated into Armenian and most schools worked according to it for many years, then some schools switched to working according to the Russian social and everyday orientation program (Grenier, Patey & Grenier-Burtis, 2022). These programs included (albeit only for students in grades V-IX) separate sections on self-care, so we will also focus on the analysis of these programs.

Being more concrete, it is interesting to mention as a sample the educational material of the “Technology” subject for students of grades I-IV of special, inclusive and regular schools was developed by a group of authors and approved by the Ministry of Education and Science of the Republic of Armenia in 2011.

The educational material of each class has specific content aimed at familiarizing students with individual sections of work.

Thus, in the first grade, the educational material of this subject is presented in the form of a workbook, without textual content, but in colorfully illustrated pictures and drawings. We present the main sections of this workbook:

- What is available in our environment?
- Who has created all this?
- What tools will we use?
- Where from to get the necessary material?
- Work with natural and artificial materials;
- What plants do we know?
- How to set the table for tea and coffee?

Those are the most important points that we are going to analyze further.

RESULTS AND DISCUSSION

“Technology” subject

An analysis of different sections of a first-grader’s workbook for the “Technology” subject shows that the material presented only with pictures and drawings contains almost no information about the

formation of ideas and concepts of self-care for children with MMR. Here, only the last topics (“How to set a table for tea” and “How to set a table for coffee”) to some extent contain visual material in two pictures, aimed at forming an idea of what should be on the table.

The rest of the material presented in pictures and drawings in the workbook, although important for the general development of children of this age, is almost not connected with the issue of self-service (Hovsepyan, Harutyunyan, Aghajanyan & Verdyan, 2014).

The educational material for the “Technology” subject for the II grade is much larger, not only in terms of the number of pictures and drawings, but it also contains a short text that reveals the main illustrated material of the presented section.

The content of this subject includes 50 sections, the text of which is accompanied by illustrations of relevant drawings and pictures. The main sections are shown in the Table 1:

Table 1.

Content of the “Technology” subject in grades I-II.

1	How to prepare material for work
2	Work with various objects: applique, mosaic with seeds, working with foil, colorful paper and cardboard, etc.
3	Birds and their varieties
4	Animals: elephant, lion, hare
5	Sea fish
6	Growing and caring for flowers
7	Holiday cards
8	Compositions: spring, summer, winter, forest
9	Trees
10	Details of technical stuff
11	Rules of hygiene of clothing and shoes, their cleaning and care

As it is mentioned the field related to self-care is highlighted with yellow and within the context of other topics it is relatively small. We have not presented many sections here, since they are a continuation of the material taught in the first class: working with natural and artificial materials, appliqué, dolls made of dry straw, working with legos, and things related to this kind of thing.

An analysis of the content of the educational material in these and other sections of the subject “Technology” of the grade II shows that here again there is very little specific material related to the problem of self-care. Only the section “Rules of hygiene of clothing and footwear, their cleaning and

care” directly addresses the issues of developing self-care skills in mentally retarded young schoolchildren (Hovsepian, Harutyunyan, Aghajanyan & Verdyan, 2014).

The educational material of the subject “Technology” for grades III and IV differs in the content of the same subject for grades I-II, both in quantity and in issues related to the education of self-service in these pupils. Here, as well as in grades I-II, many topics move from class to class: working with paper and cardboard, what tools we will work with, etc. We will not dwell on these and other similar topics, since they mainly contain material that promotes the general development of children and almost does not address the problem of self-care.

It was also stated that in the educational material of the subject “Technology” for grades III-IV, there are several topics directly related to the issues of education and the development of self-care skills in certain types of activities (Table 2).

Table 2.

Content of the “Technology” subject in grades III-IV.

1	Clothes and shoes: <ul style="list-style-type: none">• types of buttons fastening;• necklaces and bracelets made of buttons.
2	Sanitary and hygienic requirements: <ul style="list-style-type: none">• sanitary and hygienic requirements for the apartment and furniture;• kitchen utensils;• safety rules for using heating devices;• gas safety rules.
3	Food: <ul style="list-style-type: none">• the importance of food in human life;• general requirements for food products;• sanitary and hygienic requirements for food preparation;• interesting sandwiches;• types of meat foods;• boiled potatoes;• quickly perishable foods should be stored in the refrigerator.

This material is very important for the education and development of daily very important skills and abilities in primary school children with MMR. They will help them independently comply with

sanitary and hygienic requirements for the cleanliness of rooms, clothes, and shoes, know the rules for using them, etc. Educational material related to nutrition issues, self-care when selecting, storing and using food, maintaining a diet, etc. is also important.

At the same time, it should be noted that a significant part of the sections related to the development of self-care skills in retarded students remained beyond the scope of the subject “Technology” (Hovsepyan, Harutyunyan, Aghajanyan & Verdyan, 2014). These are primarily household, self-orientation in space and time, rules for using cutlery, self-service at the table during meals and other sections.

“Physical education” subject

Based on the objectives of the problem under study, it also becomes important to analyze another school subject “Physical education” in terms of how it reflects the issues of education and the development of these children's self-care skills and abilities.

The study and analysis of primary school physical education programs indicate that the means and methods of physical education, in addition to solving basic problems, have great potential for promoting the development of self-service skills in mentally retarded students.

This work can be organized both in physical education lessons, in extracurricular club activities, and in other various physical education and sports activities: gaming, educational, sports, spatial orientation, etc. These can be a wide variety of exercises, tasks, specially made-up situations, organizational forms and methods of their implementation.

Thus, in physical education programs for students in grades I-IV in special and regular schools, the following sample tasks, exercises, motor actions, organizational forms and conditions are presented, which to some extent contribute to the education and development of self-care skills and abilities and independence in this group of children:

- changing clothes before and after physical education lessons and physical education and sports activities or events beyond class time;
- preparing sports equipment and gym for training sessions, games, and events;
- cleaning and folding sports equipment after educational and extracurricular physical education classes;
- building, changing lanes and moving around the gym or playground, determining one's location, direction of movement, speed of movement, etc.;
- maintaining physical exercise hygiene, cleanliness of the body, sportswear and shoes;
- compliance with the elements of self-care and independence when performing physical exercises, tasks, participating in games, etc.;
- performing exercises and tasks to develop correct posture, manner of movement, culture of

behavior and communication, which are very important for self-care in various fields of activity;

- exercises in walking, running, and playing activities performed with objects (balls, hoops, jump rope, clubs, etc.) and without them, aimed at developing the skills of orientation in space and time.

These and many other exercises and tasks presented in physical education programs for students in grades I-IV are primarily aimed at solving the main problems of physical education of children with MMR; they only indirectly relate to the problem of developing self-care skills in these schoolchildren. The educational material of the section on gymnastics, athletics and games does not contain specific exercises, tasks, or motor actions aimed at the formation, development and improvement of self-care and independence skills in these children.

These sections of the school curriculum in the subject “Physical education” do not develop or present the basic requirements for theoretical knowledge and practical skills in self-care for students in grades I-IV with developmental problems, which they should have in this subject by the end of the school year.

“Math” subject

Familiarization with the "Math" program for grades I-IV of special and regular schools indicates that this subject, its educational material, assignments, and exercises have great potential for promoting the development of skills and abilities of self-care and independence among these young schoolchildren (Wang, 2019). Performing various educational tasks in a mathematics lesson, related to the use of many objects (ruler, pen, triangle, square, etc.), requires this student to be able to work independently, navigate in micro space, be independent of others, and serve himself.

It has been established that in the “Math” subject program for grades I-IV of all types of schools under consideration, educational material is provided to some extent that helps to promote the formation in mentally retarded children of such spatial and temporal orientation concepts that they need in the field of self-care, such as “left”, “right”, “forward”, “hour”, “minute”, “day”, etc.

However, in general, in various sections of the “Math” subject for grades I-IV there is no educational material and special conditions aimed, except for solving basic problems, at promoting the development and consolidation of acquired skills and abilities of self-care and independent orientation in space and time in this group of primary school age children.

Thus, underlying the importance of the subject “Technology” and the educational material presented in it for the general development of these children in grades I-IV, it should be emphasized that the content of this subject and the form of presentation of educational material as a whole do not contribute to the development of self-care skills for children with MMR. Considering that in special

and regular schools under consideration, there is no "Self-Care" subject for children with MMR, the importance of including a separate "Self-Care" section in the "Technology" subject becomes evident.

CONCLUSION

Thus, it can be stated that the educational material of the subject "Math" of grades I-IV is aimed mainly at the formation and development of elementary mathematical ideas, concepts and knowledge in mentally retarded students, but that these programs contribute to the development of skills in these children and self-service skills need not be mentioned.

The educational material of these school subjects, to some extent, indirectly contributes to the development of self-service skills and the manifestation of independence in children with MMR, but this is extremely insufficient for solving this important practical task. We have not identified any interdisciplinary connection between the primary school disciplines under consideration in matters of assistance in the education and development of cultural, hygienic, economic, household, self-orientation in space and time, and other self-service skills in these younger schoolchildren.

The analysis and research of other school subjects of grades I-IV ("Drawing", "The world around me and myself", "Native language") should be conducted with the main attention on solving the principal task of the subject, issues of education and the development of self-care through the educational material of these disciplines.

Considering the above-mentioned facts, it is important to find effective ways to develop an exemplary "Self-care" program for children with MMR in primary school and the pedagogical conditions for its use.

Inclusive education can be a catalyst for changes in the educational process, which will lead to an increase in the quality of education.

Empirical research shows that many teachers believe they need "special skills" to teach students with special educational needs. However, experience shows that to involve students with special educational needs in the general education process, quality, understandable and accessible teaching is necessary, which contributes to increasing the activity of students and the quality of learning.

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INCLUSION AND LEARNING: FACTORS AFFECTING STUDENTS WITH INTELLECTUAL DISABILITIES

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ABSTRACT

The purpose of the article is to identify the factors affecting the educational activity of students with intellectual disabilities, under the conditions of the principle of universal formation of learning, which will provide an opportunity to develop the practical orientation of the pedagogical and psychological support services provided to them.

Research conducted among 119 teachers and 32, students with intellectual disabilities (8-10-year-old) from 25 general basic schools in Yerevan, Lori, Ararat, Tavush, Kotayk regions of the Republic of Armenia has allowed us to identify the factors affecting the learning process of students with intellectual disabilities, which cause many psycho-pedagogical problems in school.

The research was based on the issues identified during the additional special pedagogical support provided to these students, the complaints registered by the parents and the difficulties of the educators working with them, which are mainly related to the organization of joint learning and insufficient pedagogical conditions.

Keywords: *inclusion, learning, intellectual disability, students with intellectual disabilities, affecting the educational activity, pedagogical and psychological support service.*

INTRODUCTION

According to the World Health Organization, 10% of the total population in developed countries and 12% in developing countries are people with psychophysical developmental disabilities. Among them, 3.5% are children with language and speech disorders, and 2% are children with intellectual development disorders. They are the most vulnerable, as shown by numerous empirical studies on modern pedagogical processes (Chatenoud, Turcotte & Aldama 2020; Roberts, Tandy, Kim & Meyer, 2020; Harutyunyan, 2017; Saratikyan, 2009).

The psychophysical development of students from this group and the motivational and content features of educational activities are simply incompatible with the previous form of education. It has been found that the new approaches and principles introduced in modern educational processes are effective, which provide an opportunity to organize the learning process in a flexible and customized way.

Among them, the principles of universal design of learning (UDL), general environment design (GED) (in inclusive processes, in the form of the general learning environment design structure), student-centered learning, creating an inclusive environment, and other principles stand out. As Rose and Meyer (2005) have noted, one of the important contributions of UDL and GED to inclusion is the educator's focus on the diversity of learners (Harutyunyan, et., al., 2020; Rose & Meyer, 2005).

Thus, the radical changes in the modern education field propose new models of learning, in which the individual characteristics, strengths and weaknesses of each student, the assessment of obstacles arising from the characteristics of development, and the material and technical base introduced to make the learning process flexible and comfortable, methodical and physical adaptations (Svajyan et al., 2022; Hays & Handler, 2020; Black, Kraemer & Allen, 2018; Petrosyan, Saratikyan, Hovhannisyan, 2012a).

However, it turns out that in Armenia, there are many obstacles related to the introduction of specially developed adaptations in the educational processes of students with intellectual disabilities, which make it difficult to effectively implement the pedagogical processes in the conditions of universal educational formation. Students of this composition are not able to independently set goals, realize them, plan their actions and perform self-analysis. There are many facts, according to which educators face serious difficulties during the education of students with intellectual disabilities, due to which many children simply fall out of the learning process, and teachers have many moral and psychological problems (Svajyan et al., 2021; Peter & Clement 2020; Petrosyan, Saratikyan, Hovhannisyan, 2012b).

Based on the above, it is possible to state that the studied problem is very newsworthy because it is directly related to the issue of improving public education processes. According to the research background, the analysis of the factors affecting the learning of students with intellectual disabilities will enable the development of a flexible and adapted methodical system in the course of further scientific research for the pedagogic-psychological support services provided to these students under the conditions of universal inclusion and the improvement of the quality of universal education.

LITERATURE REVIEW

The analysis of the methodological bases of the researched issue allowed us to identify the main points of view and provisions that reveal the characteristics of the educational activity of students with intellectual disabilities, the approaches to the organization of joint learning, the theoretical foundations

and practical significance of the principle of universal formation of learning, as well as on the educational activity of students of this composition. reflecting factors.

According to them, it was found that the ideological values of modern education were based on Gardner, Bloom, Galperin, and Luria's well-known theories that emphasize the learner's multiple intelligence (Gardner, 2006; Luria, 1970), the hierarchical construction of pedagogical processes (Bloom's taxonomy) (Bloom, 1956), the staged development of intelligence (Reana, 2003; Talizina, 1984; 2006; Galperin, 1976). Luria's theories of experimental (project) learning which is widely used in the modern education system (Kornetova, 2009; Luria, 1970). Rose and Mayer's (2005) approach to the universal formation of learning is based on the formation of the ability to remember, understand, apply, analyze and evaluate the learning material (hierarchical structure of the learning process), the promotion of motivation for learning activities, the development of action plans, execution, presentation, etc. are brought to the fore (the theory of staged development of intelligence), as well as the formation of the ability to find solutions by performing independent experiments.

All this, as the scientific analyses indicate, is anchored in the mechanism of activation of activity of three functional blocks of Luria's brain, namely activation of cognitive, strategic and emotional networks.

According to Rose's study (2005), the learner should understand why to learn (promoting learning needs), what to learn (knowledge, abilities, skills) and how to learn (flexible, adaptable, multi-use tools, pedagogical ethics). This approach stimulates brain activity and activates the student as an individual in these processes (Rose & Mayer, 2005).

The literature review has shown that this approach is quite successful in developed Western countries, but in developing countries, there are still many obstacles that objectively cause difficulties in educational processes, especially when it comes to students with intellectual disabilities (Peter & Clement, 2020; Hays & Handler, K., 2020).

The analysis of scientific-methodical and scientific-pedagogical literature has shown that according to the requirements of modern education, students with intellectual disabilities are included in general education without discrimination, but the pedagogical-psychological support provided to them has acquired decisive importance for accounting for the characteristics of their educational activities and factors affecting their learning.

In the conditions of inclusive education such phenomena as low self-esteem, avoidance of educational activities, maladjustment at school, etc. are often recorded in children with mental developmental disorders, which are caused by insufficient pedagogical conditions. In inclusive processes, they are quite sharply expressed and are decisive from the point of view of these children's

social adaptation and acquisition of educational abilities. This is due to the mental and physical, as well as educational activity, behavioral, and emotional features of the students of this group.

The low educational requirements of students with intellectual disabilities, the psycho-neurological processes of understanding the educational material, the volume, the pace, and the sustainable strengthening of the acquired knowledge, abilities and skills, as well as the inability to voluntarily regulate behavior, create a demand so that in the processes of universal formation of learning “accurately” calculate their developmental and educational requirements and their characteristics (Harutyunyan et. al, 2020; Lizunova & Anatolyevna, 2020; Harutyunyan, et. al., 2019; Petrosyan, Saratikyan, Hovhannisyan, 2012a).

This requirement puts teachers, parents, and even special educators in front of serious difficulties in modern pedagogical processes. Experimental studies prove that many methodological resources are needed for this, to organize the learning process based on the individual characteristics of each learner. Pedagogical and psychological support services help to solve these problems in real educational processes, without which joint learning processes cannot take place (Wahyunika, Miftachurohmah Insyra, Qisissin, Aisah, Jatmiko 2020; Whitver, 2020; Tobin, 2019).

Based on the above, the analysis of the factors affecting the learning of students with intellectual disabilities was based on the analysis of the practical setting of the pedagogical and psychological support service provided to them, through surveys, interviews, free conversations and observations among teachers, parents and students.

METHODOLOGY

Considering the study problem as a priority for the organization of joint learning of students with intellectual disabilities with their non-disabled peers, it was tried to solve the factors affecting their educational activities, which are especially acute in the conditions of universal inclusion.

The research was conducted in 2022-2024 in the Republic of Armenia. A total of 119 teachers of 25 primary schools in Yerevan, Lori, Ararat, Tavush, and Kotayk regions of the Republic of Armenia and 32 students with intellectual disabilities aged 8-10 years and their parents took part in the research.

The research data have been collected using the following methods:

- Survey administration: standardized questionnaires were used to gather quantitative data from participants.
- Semi-structured interviews: in-depth conversations explored participants' experiences and perspectives in detail.
- Open-ended discussions: unstructured conversations facilitated the collection of rich qualitative data.

- Direct observations: researchers observed participants in their natural environment (e.g., classrooms, support service sessions) to gain insights into their behavior and interactions.
- Case study analysis: existing case files documented from support services provided to students with intellectual disabilities were analyzed to identify patterns and trends.

Thus, a quantitative research, in-depth interview questionnaire was developed and thematic conversations were held ("How does your child adapt to the classroom process?", and "How do they help the child at school in learning the learning material?", "What is the child complaining about?", "What do the pedagogic-psychological support services give you to support the child at home?")

By the established objective, partial research inquiries were delineated as follows:

- to discover how pedagogues, evaluate the socio-psychological and pedagogical conditions of providing pedagogical-psychological support services for students with intellectual disabilities;
- find out how educators evaluate the availability of the material and technical base required for the provision of pedagogical-psychological support services to students with intellectual disabilities;
- to what extent are they provided with appropriate tools for organizing the learning of students with intellectual disabilities?
- which factors and obstacles affecting the effectiveness of the learning processes of students with intellectual development disorders are distinguished?

RESULT

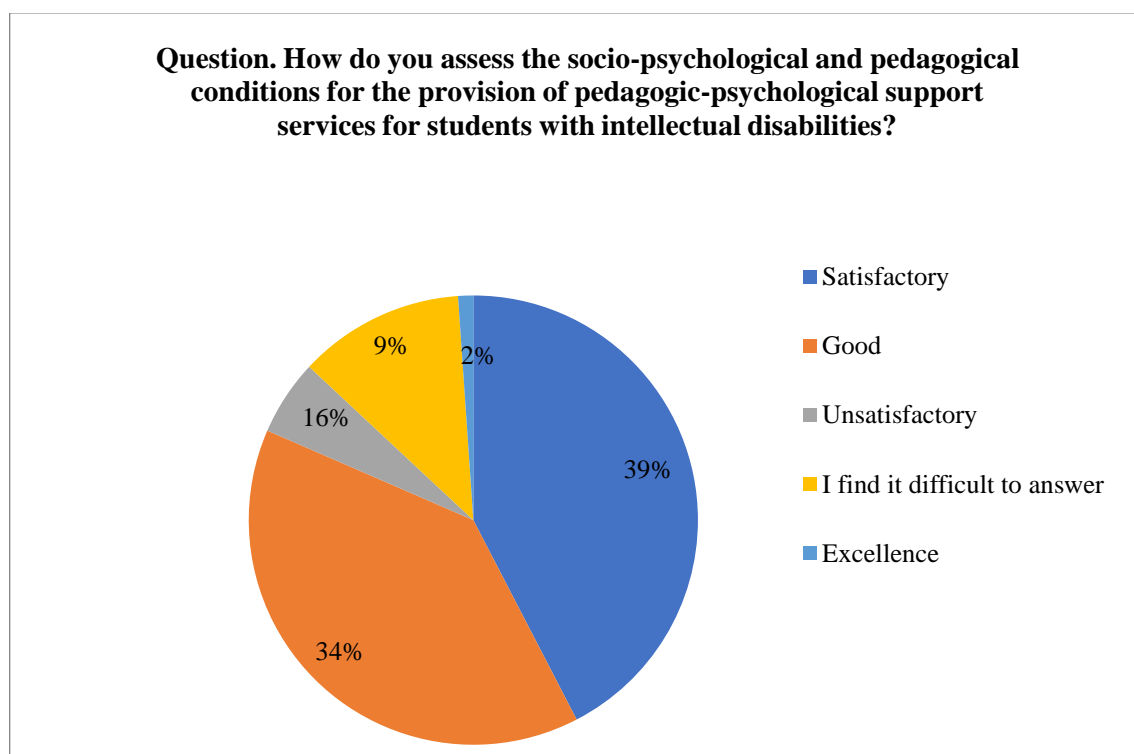
Based on the goal of analyzing the factors affecting the educational activity of students with intellectual disabilities, the following key point actions were identified:

1. to study the practical situation of students with intellectual disabilities through surveys and interviews with teachers;
2. to identify the obstacles and complaints recorded during the educational activity of students with intellectual disabilities;
3. to make comparative analyses between surveys conducted with teachers and conversations conducted with parents and children, interviews, and cooperative difficulties recorded during practical classes;
4. to make conclusions to enable outlining and defining the vision of a practical direction for improving the learning processes of students with intellectual disabilities.

And so, to the question: "How do you evaluate the socio-psychological and educational conditions for the provision of pedagogical-psychological support services for students with intellectual disabilities?" 40 of 119 teachers (34%) answered "Good", 47 (39 %) rated it as "Satisfactory", 11 (9%) found it difficult to rate it, 19 (16%) rated it as "Unsatisfactory" and only 2 (2%) rated it as Excellent" (Figure 1).

Figure. 1

Indicators of assessment of socio-psychological and pedagogical conditions of provision of pedagogic-psychological support services to students with intellectual disabilities.



As a result of the data analyzed from in-depth interviews conducted with educators for the same question "What socio-psychological factors should be taken into account in the pedagogical-psychological processes of students with mental developmental disorders?", 75 out of 119 (63%) teachers' responses recorded that could not interpret them or gave general answers, while only 16% assessed the socio-psychological and pedagogical conditions for the provision of pedagogical-psychological support services to students with intellectual disabilities as "Insufficient".

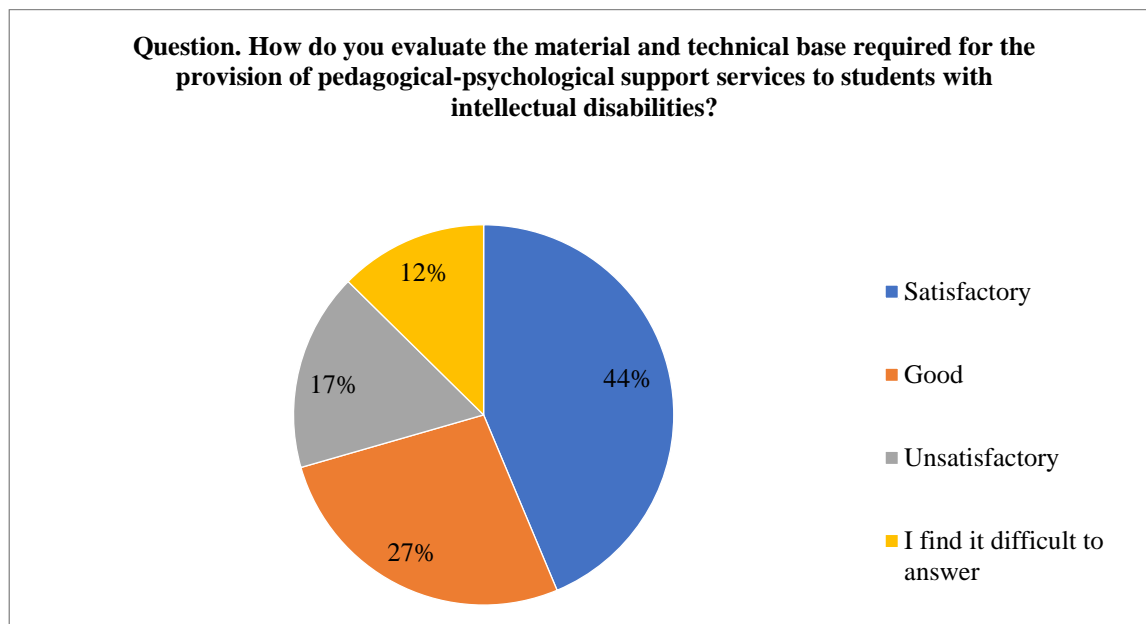
At the same time, during the training conducted with 38 students with intellectual disabilities, it became clear from the children's behavioral manifestations and recorded "Dissatisfactions" that almost 20 of them (53%) have many conflicts in their interpersonal relationships with teachers. Almost 28 (74 %) have a very negative attitude towards stationery and some pedagogical instructions (towards the

instruction of "Red pen", "Pointing stick" or "Follow the text with your finger"). Most of them said that no one wants to sit next to them in the class, "They don't play with them", and "Teacher's assistants don't like them because they help their other friends and not them".

Related to the question to obtain information on the availability of relevant educational materials in the junior school: *"How do you evaluate the material and technical base required for the provision of pedagogic-psychological support services to students with intellectual disabilities?"* the following picture had been received (Figure 2). The majority of respondents are more or less satisfied with the available resource and evaluate it as "good" or "Satisfactory".

Figure 2.

Evaluation indicators of the material and technical base required for the provision of pedagogical-psychological support services to students with intellectual disabilities.



At the same time, during free conversations and interviews, the question of, for example, what supporting materials are used during the "Mother Language" class, what supporting didactic materials do they have in the classrooms for letter learning, the texts for the educational purposes of children with mental development disorders. to adapt to needs, they mainly mentioned posters and pictures intended for normally developing children, which either remained from the former Soviet period or were self-made and developed during their own experience, which did not take into account the features of the sensory sphere of students with intellectual development disorders. Only 37 (31%) of the teachers interviewed mentioned special libraries, voice guidance, some features of working on the test, and other approaches to adapt the basic learning material with QR codes to the educational needs of these learners.

Thus, the researches on the practical setting of the universal learning process prove that the methodological and material-technical base, which is an important component of it for students with intellectual disabilities, such as accessible teaching manuals, textbooks, notebooks, card libraries, and sticky, bold, clear font and large font libraries with font sizes (14-16), as well as special writing equipment, "Talking alphabets", for the consumption of alternative communication are missing.

This is also evidenced by the answers to the question *"Are you provided with a specially developed toolkit to increase the quality of support services provided to students with intellectual disabilities?"* which is shown in Figure 3.

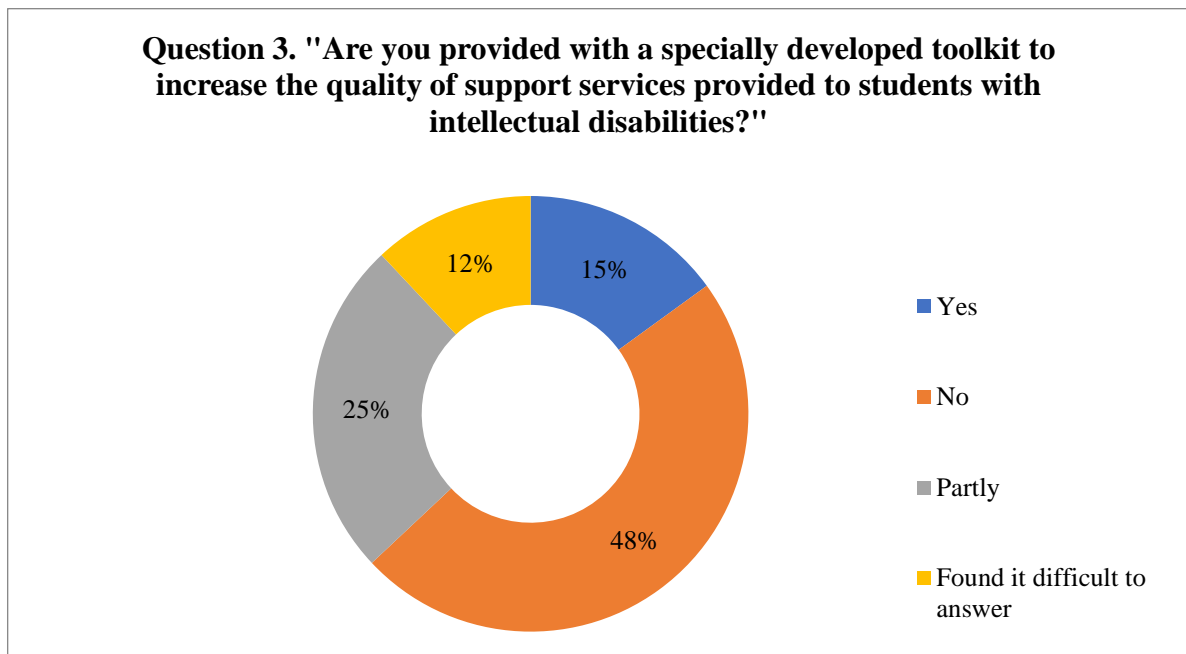


Figure 3.

The registered indicators regarding the availability of the toolkit to improve the quality of support services provided to students with intellectual disabilities.

The above-mentioned facts are also reflected in the answers given to the question, *"Are you satisfied with the methodological instructions in the educational literature, from the point of view of effectively organizing the educational processes of children with intellectual disabilities?"* indicated in Figure 4.

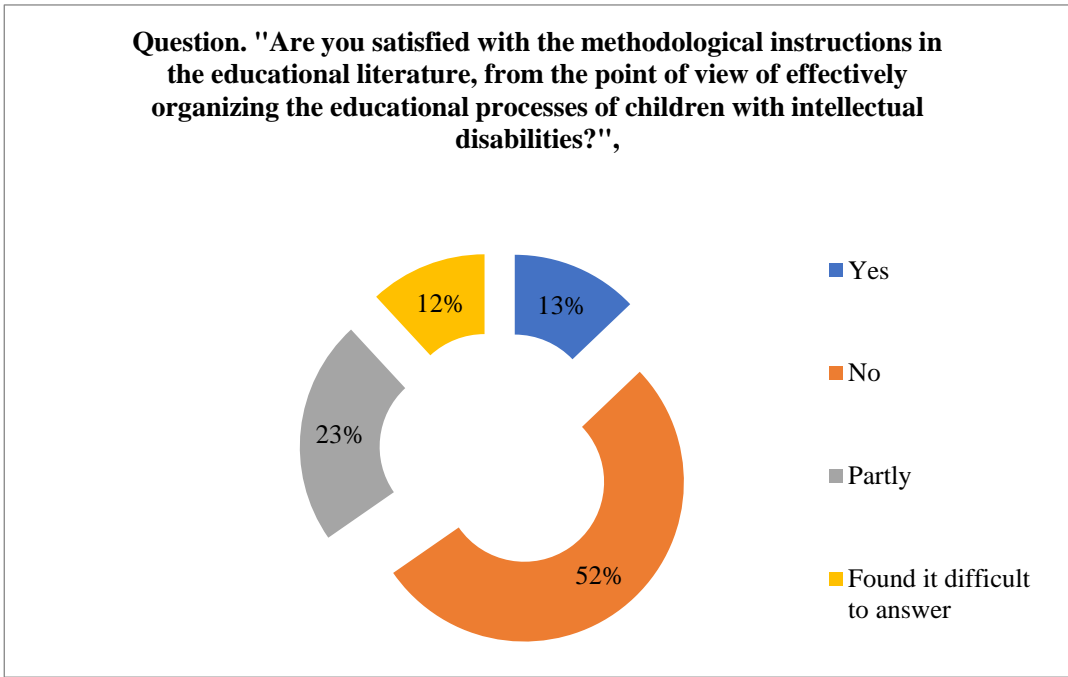


Figure 4.

The recorded indicators regarding the effectiveness of the methodological instructions provided in the direction of increasing the quality of support services provided to students with intellectual disabilities.

From the answers given to the question "What methodological tools do you use" during the in-depth interview and free conversations, it can be seen that some teaching aids are provided to teachers within the framework of methodological support developed by the MCC, but specifically developed specifically for children with intellectual disabilities. instructions are almost absent and they are not enough to facilitate the learning of children in this group (84%)

Taking into account the significance of the impact of factors affecting the organization of pedagogical processes, we have also tried to find out, especially according to the teachers, what they are through surveys.

"In your opinion, what are the factors and obstacles that have the most negative impact on the learning of students with mental retardation?" 57 out of 119 teachers (48%) noted the peculiarities of their educational activities, 70 (59%) noted the insufficient development of the practical setting of pedagogical and psychological support services, and 80 (67%) pointed out the methodological issues of adapting the educational process. As for the lack of teaching aids, available materials and didactic accessories, 60 (50%) mentioned them, and 98 (82%) mentioned their insufficient knowledge in this field (Figure 5).

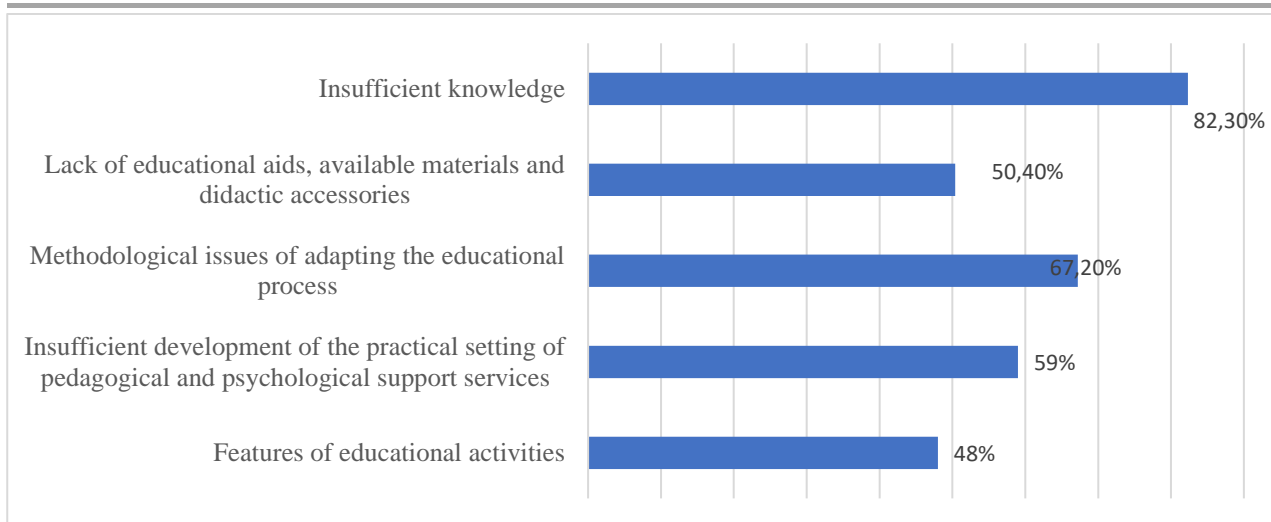


Figure 5.

Factors and obstacles affecting the effectiveness of educational activities of students with intellectual disabilities.

The fact that the characteristics of the learning activities of students with intellectual disabilities are decisive for modern educational processes is also evidenced by parents. Almost 66% of the 38 parents who participated in the interview "How do they help your child master the learning material" answered that they "don't understand" the characteristics of the child's development at school, "they don't know how to deal with them in learning". Many children, according to their parents, only copy or copy the letters, and recopy them, while most of them write and read as a result of additional special pedagogical training.

During one of the conversations, the parent participating in the research said: "We only sign some papers at school, but we don't have results...". By the way, research shows that many of them simply refuse the pedagogic-psychological services provided at school, considering them ineffective. Another respondent says: "The child refuses to go to school. leaves the classroom because he is idle and bored". These and many similar facts indicate that there are serious problems in the actual learning process of this group of students. Our long-term experience also proves that the knowledge, abilities, and skills given in the course of special pedagogical additional classes are generally not continued at school and are not combined with the taught content. He thought that the goals of special pedagogical support and educational processes proceed independently of each other.

By the way, the fact that educators do not have sufficient knowledge and experience to work with students with intellectual disabilities was also proven by surveys, where 82% of teachers confirmed

that one of the most serious factors affecting the educational performance of these students is their insufficient knowledge.

During the in-depth interviews, 45 of 119 teachers (38%) responded to the question, "How do the difficulties arising in the work with students with intellectual disabilities affect their pedagogical activities" that in most cases they experience feelings of helplessness, disappointment, and hopelessness. feeling, 56 (47%) try not to notice the difficulties and continue to work, and the descriptions of 55 (46%) reflect the phenomenon of professional burnout. 75 (63%) of the educators stated that "to overcome these situations" they try to overcome the lack of knowledge and gain new experience through self-education and self-development.

The conducted research allowed the making of several conclusions, which are presented below in the section.

DISCUSSION AND CONCLUSION

The conducted quantitative and qualitative research allowed us to conclude that the socio-psychological and pedagogical conditions for the provision of pedagogic-psychological support services for students with intellectual disabilities are insufficiently developed, the material and technical base of educational process psychological support needs to be satisfied, and the methodology of the toolkit provided to educators needs to be rethought and reworked (Peter & Clement, 2020; Hays & Handler, K., 2020).

It has been revealed that the factors affecting the learning process of students with mental development disorders cause several psycho-pedagogical problems, which negatively affect the motivations of students' educational activity, and the effectiveness of learning. It was found that among the factors affecting the effectiveness of pedagogical-psychological support for students with intellectual disabilities, most of the pedagogues prioritized the methodological issues of adapting the educational process (67%), most of them found that the practical setting of pedagogical-psychological support services is insufficiently developed (59%).

It was found that 50% of the respondents considered the lack of available educational materials and didactic accessories as an obstacle. 48% of educators considered that these children's developmental characteristics, maladaptive behavior, and learning activities make it very difficult for them to learn together and even in the conditions of the universal formation of learning require specially developed approaches. It should be noted that the highest indicator related to the factors hindering the educational process of students with intellectual disabilities is the insufficient knowledge of general education school teachers to work with them, which was mentioned by 82% of educators.

It follows from what has been said that in the conditions of universal inclusion and education reforms, there are many factors affecting the learning of students with intellectual disabilities, which hinder the formation and establishment of educational activities for these children. In addition, many psycho-pedagogical problems arise, which have a particularly negative impact on the motivational sphere of this form of activity, positive classroom environment, and, in general, school adaptation (Tobin, 2019).

Based on the above, we believe that the pedagogical and psychological support service provided to these children still has ideological and content deficiencies, which are typical of developing countries, and that they require urgent solutions to fully include children with mental development disorders in the modern education system.

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INNOVATIVE SOLUTIONS FOR LEARNERS WITH VISUAL IMPAIRMENTS

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ABSTRACT

This paper explores the integration of innovative solutions in education to address the unique needs of learners with visual impairments. Despite education being a fundamental right, traditional methodologies often overlook this demographic, leading to significant learning barriers. The study examines the impact, efficacy, and potential improvements of assistive technologies (AT) and inclusive educational practices through a detailed review of recent literature. Key findings include the effective use of IT network programs, digital interface augmentation, haptic technology, and collaborative tools that support both visually impaired and sighted learners. By analyzing these technological interventions and educational strategies, the paper aims to highlight best practices, identify existing gaps, and propose directions for future research and development in making education more accessible and inclusive for visually impaired students.

Keywords: *visual impairments, inclusive education, assistive technologies, IT network programs, digital interface augmentation, haptic technology, collaborative educational tools, accessibility, educational barriers, innovative solutions.*

INTRODUCTION

Education is a fundamental right that should be accessible to all, including learners with visual impairments. However, traditional educational methodologies often fall short in catering to the unique needs of this demographic, creating significant barriers to their learning and overall development. The advent of technology has paved the way for groundbreaking solutions that promise to bridge this gap, offering new avenues for inclusive education. This paper embarks on an exploratory analysis of innovative solutions designed to enhance the learning experience for individuals with visual

impairments, critically examining their impact, efficacy, and areas for future improvement.

The educational landscape for learners with visual impairments is fraught with challenges, ranging from a lack of accessible learning materials to insufficient teacher training in inclusive education practices. Lobo, Guedes, and Sá Leal (2020) highlight an IT network program tailored for visually impaired students, incorporating tools like iNetSim and Microsoft HoloLens 2 to create a more inclusive virtual classroom environment. Similarly, Tuwaym and Berry (2018) emphasize the critical role of assistive technology (AT) in empowering students with visual impairments to participate fully in the academic environment, though they note disparities in AT usage between rural and urban schools.

Recent innovations in assistive technologies and educational methodologies are reshaping the learning experience for visually impaired students. Muradyan (2023) discusses the augmentation of digital interfaces to facilitate easier navigation and interaction with personal computers and smartphones, enhancing the educational process for visually impaired students (Muradyan, 2023). The integration of haptic technology, as explored by Kim (2009), offers another dimension of interaction, enabling students to 'feel' virtual objects and better understand complex scientific concepts (Kim, 2009).

Furthermore, collaborative educational tools that support both visually impaired and sighted users are emerging as powerful enablers of inclusive education. Waqar, Muhammad, and Farhan (2019) propose an intelligent and interactive interface that facilitates symmetrical collaborative writing, enhancing the educational participation of visually impaired individuals.

This paper **aims** to delve into these innovative solutions, examining their implementation, outcomes, and the perspectives of educators, learners, and technologists. By analyzing these interventions within the context of inclusive education, we aim to identify best practices, pinpoint gaps, and suggest pathways for future research and development in this vital field.

LITERATURE REVIEW

Assistive technologies (AT) for learners with visual impairments have evolved significantly, offering a spectrum of tools ranging from traditional Braille materials to advanced digital aids. These technologies aim to facilitate access to education, improve learning experiences, and foster independence among visually impaired students.

High-tech solutions like digital Braille displays and screen readers have revolutionized the way visually impaired learners access and interact with textual content. Prabhu, Sujathamalini, and Ravichandran (2023) emphasized the importance of digital technologies in enhancing reading, writing, and communication skills, thereby improving the overall quality of life and academic excellence for visually impaired students. Moreover, the advent of innovative applications as discussed by Frazão and others (2020) has facilitated learning through the use of mobile and tablet apps specifically designed to

meet the educational needs of visually impaired learners.

In the realm of mobility and navigation, assistive technologies like smart canes and wearable devices have provided visually impaired individuals with greater independence. Chanana, Paul, Balakrishnan and Rao (2017) reviewed various assistive solutions aiding in the travel of pedestrians with visual impairments, highlighting the role of sensor technology in capturing environmental details and the challenge of conveying this information in an understandable form.

Despite the advancements, the integration of AT in education faces significant barriers. Kirboyun (2020) explored the impact of assistive technology in school settings, identifying challenges such as the cost of equipment, lack of training, and the need for more inclusive educational practices. Further, it underscored the importance of assistive technologies in enhancing the participation of students with visual impairments in extracurricular activities, while also pointing out the barriers to their effective use (Anselimus, 2023).

The development and deployment of assistive technologies for visually impaired learners is a dynamic and evolving field. Pundlik, Shivshanker, and Luo (2023) emphasized the impact of mobile apps as assistive devices, providing visually impaired persons with tools for text and object recognition, navigation, and digital accessibility. However, they also highlighted the need for rigorous evaluation studies to understand the real-world benefits of these apps.

In conclusion, while assistive technologies have made significant strides in supporting visually impaired learners, ongoing research, development, and collaboration among stakeholders are crucial to address existing challenges and unlock the full potential of these innovations. By focusing on user-centred designs, affordability, and comprehensive training programs, the future of education for visually impaired students can be significantly enhanced.

METHODOLOGY

Desk research methodology has been used as a method for collecting and analyzing the data from available secondary sources, such as academic publications and other resources presented online (Management Study Guide - Courses for Students, Professionals & Faculty Members., n.d.).

As a research method Desk research examines the data from already existing documents and previous studies and is considered to be secondary data to gather information on a specific topic. This method relies on data it has already collected from other people. Within the frame of the current study, this method has provided strong arguments and helped to develop a line of thought or fight for the ideas. As a research method, the survey method has been used (QuestionPro, n.d.).

DATA COLLECTION

In the course of our research, we compiled a questionnaire that allowed us to highlight the problems that RA universities face in their daily activities. 40 employees of RA Yerevan and regional universities participated in the survey. Let's introduce the results

The questionnaires for data collection have been developed and introduced below.

Question 1: Availability of Assistive Technologies

How would you rate the availability of assistive technologies for visually impaired students in your university?

- A) Widely available and easily accessible
- B) Available but with some accessibility issues
- C) Limited availability
- D) Not available at all

Question 2: Training on Assistive Technologies

Are faculty and staff adequately trained to support visually impaired students using assistive technologies?

- A) Yes, comprehensive training is provided
- B) Yes, but only basic training is provided
- C) Training is sporadic and not comprehensive
- D) No training is provided

Question 3: Inclusion of Visually Impaired Students in Collaborative Work

How effective are the methods used at your university to include visually impaired students in collaborative classroom activities?

- A) Very effective; inclusive methods are integrated seamlessly
- B) Somewhat effective; there are efforts, but they can be inconsistent
- C) Not very effective; inclusion happens rarely and is often challenging
- D) Not effective at all; visually impaired students are frequently excluded

Question 4: Customization of Learning Materials

To what extent are learning materials customized to meet the needs of visually impaired students?

- A) Fully customized to each student's needs
- B) Generally customized, but not always to individual needs
- C) Rarely customized; most materials are standard
- D) Not customized at all

Question 5: Accessibility of Digital Platforms

How accessible are the digital platforms (e.g., learning management systems, websites) used in your university for visually impaired students?

- A) Fully accessible with various assistive features
- B) Partially accessible but with some limitations
- C) Minimally accessible; many areas are difficult to navigate
- D) Not accessible; platforms are not designed with visually impaired users in mind

FINDINGS AND DISCUSSION

The responses to the questionnaire regarding the availability of assistive technologies for visually impaired students in the university present a concerning picture. With the majority of participants indicating option D ("Not available at all"), and a negligible 2.5 percent selecting option C ("Limited availability"), the data suggests a significant gap in the provision of essential resources for students with visual impairments. The absence of responses for options A ("Widely available and easily accessible") and B ("Available but with some accessibility issues") further underscores the lack of attention and resources dedicated to this critical aspect of inclusive education.

As a researcher with a decade of experience in the field of educational technology and inclusion, this outcome indicates several key issues that need immediate attention:

- **Resource Allocation:** The lack of assistive technologies points to possible deficiencies in resource allocation or prioritization within the university's budget and planning. Assistive technologies are fundamental for ensuring that visually impaired students can access educational content and participate fully in academic activities. The absence of such technologies suggests that the needs of these students may not be adequately recognized or prioritized by the institution.
- **Awareness and Training:** The results may also reflect a broader issue of awareness and training among the university's administration, faculty, and staff. The effective integration of assistive technologies requires not only financial investment but also a commitment to training and a culture that values accessibility and inclusivity. The lack of available technologies could indicate insufficient training or awareness of the importance of these tools in supporting visually impaired students.
- **Policy and Planning:** The findings suggest a need for a thorough review of the university's policies and strategic planning concerning inclusivity and support for students with disabilities. Effective policies should encompass the procurement, maintenance, and upgrading of assistive technologies, as well as training for students and staff on how to utilize these tools effectively.
- **Student Involvement:** The minimal feedback from students regarding the availability of assistive technologies suggests that there might be a disconnect between the student's needs and the

university's provisions. Engaging students with visual impairments in conversations about their needs and experiences could provide invaluable insights into how the university can improve its support services.

- **Collaboration and Partnerships:** To address the gaps in assistive technology provision, the university could explore collaborations with NGOs, government agencies, and technology providers specializing in assistive technologies. Such partnerships could provide both financial and technical support, helping the university to enhance its resources and training programs.

The results regarding the training of faculty and staff in supporting visually impaired students using assistive technologies reveal significant deficiencies within the educational system, particularly outside of capital universities. With 42 per cent of respondents indicating that no training is provided (Option D), 34 per cent noting that training is sporadic and not comprehensive (Option C), and 23 per cent acknowledging only basic training (Option B), it's clear that the current level of support for visually impaired students is inadequate. The fact that only 1 per cent of respondents, predominantly from capital universities, reported comprehensive training (Option A) suggests a stark disparity in the quality of support between institutions in different geographic locations.

As a researcher with extensive experience in educational technology and inclusivity, this data suggests several critical insights and implications:

Geographical Disparities: The concentration of comprehensive training in capital universities implies significant geographical disparities in the support for visually impaired students. This could be due to various factors, including resource allocation, access to specialized training providers, and the prioritization of inclusivity initiatives. Students in regional universities are evidently at a disadvantage, underscoring the need for policies and initiatives that ensure equitable support across all institutions.

Insufficient Training: The majority of respondents indicating sporadic, basic, or no training suggests a systemic issue in the preparation of faculty and staff to meet the needs of visually impaired students. This lack of adequate training not only hinders the effective use of assistive technologies but also potentially impacts the overall academic experience and success of these students.

Need for Comprehensive Training Programs: The data highlights an urgent need for the development and implementation of comprehensive training programs focused on assistive technologies and inclusive teaching practices. Such programs should be made accessible to all educational institutions, regardless of their geographical location, to ensure that faculty and staff are well-equipped to support visually impaired students effectively.

Policy and Investment: The disparities and deficiencies in training suggest a need for a reevaluation of policies and investment in professional development related to inclusivity and assistive

technologies. Governments, educational authorities, and institutions must prioritize funding and resources towards building a more inclusive educational environment.

Collaborative Efforts: Addressing the training gap requires collaborative efforts between educational institutions, non-profit organizations, assistive technology experts, and disability advocacy groups. Partnerships can facilitate the sharing of resources, expertise, and best practices, contributing to the development of a more uniform standard of support for visually impaired students.

In conclusion, results underscore a critical need for systemic changes in how educational institutions prepare their faculty and staff to support visually impaired students. The geographical disparities in training quality necessitate targeted interventions and policies to ensure that all students, regardless of their location, have access to a supportive and inclusive educational environment. As institutions work towards this goal, the focus should be on comprehensive training, equitable resource distribution, and collaborative efforts to uplift the standards of education for visually impaired students across the board.

The results regarding the inclusion of visually impaired students in collaborative classroom activities reveal a concerning landscape, with a majority of participants indicating less than optimal effectiveness. Specifically, 46 per cent of respondents feel that the methods used are not very effective (Option C), with inclusion happening rarely and being challenging. A further 42 per cent believe that the methods are somewhat effective but suffer from inconsistency (Option B). Only a small fraction, 2 per cent, report that the inclusion methods are very effective and integrated seamlessly (Option A), and 10 per cent state that the methods are not effective at all, with visually impaired students frequently excluded from collaborative activities (Option D).

As a researcher with expertise in educational inclusivity, these findings point to several critical issues and areas for improvement:

Inconsistency in Inclusive Practices: The fact that a significant portion of respondents (42 per cent) acknowledge some efforts towards inclusion but also highlight inconsistency indicates that while some educators may be committed to inclusivity, there lacks a uniform approach or policy enforcement across the board. This inconsistency can create an unpredictable learning environment for visually impaired students, impacting their engagement and success in collaborative work.

Challenges in Effective Inclusion: The majority view (46 per cent) that inclusion methods are not very effective suggests that current strategies may not adequately address the unique needs and challenges faced by visually impaired students in collaborative settings. This could be due to a variety of factors, including inadequate resources, lack of tailored instructional strategies, or insufficient understanding of the potential contributions of visually impaired students in group work.

Existence of Exclusionary Practices: The indication by 10 per cent of respondents that visually

impaired students are frequently excluded is particularly troubling. It suggests that in some instances, there may be overt or subtle barriers to participation, possibly stemming from biases, lack of accommodations, or inadequately designed collaborative activities that do not consider the diverse needs of all students.

Need for Comprehensive Training and Resources: The survey results underscore the need for comprehensive training for educators in inclusive teaching practices and the development of resources and tools that facilitate effective collaboration among all students. Educators need to be equipped with strategies, activities, and technologies that can adapt to diverse learning needs and preferences.

Promotion of an Inclusive Culture: Beyond practical strategies and resources, there is a need to cultivate an inclusive culture within educational institutions. This involves fostering attitudes and values that embrace diversity, encourage empathy and understanding, and recognize the contributions that all students, including those with visual impairments, can make to collaborative work.

In conclusion, the survey highlights significant areas for improvement in the inclusion of visually impaired students in collaborative classroom activities. Addressing these issues requires a multifaceted approach, involving the development of consistent, effective inclusion practices, comprehensive educator training, the creation of accessible resources, and the promotion of an inclusive educational culture. By taking these steps, educational institutions can ensure that all students, regardless of their visual abilities, are fully engaged and valued members of the learning community.

The results regarding the customization of learning materials for visually impaired students present a clear call to action for educational institutions. With an overwhelming 76 per cent of respondents indicating that learning materials are rarely customized and primarily standard (Option C), and 22 per cent stating that materials are not customized at all (Option D), it's evident that the current state of educational material provision significantly neglects the specific needs of visually impaired students. The minuscule percentage that mentioned full customization (Option A) indicates such instances are exceptionally rare, highlighting a stark disparity in educational access and quality.

As an experienced researcher in educational inclusivity, these findings suggest several key issues:

Lack of Individualized Support: The overwhelming response that learning materials are rarely or never customized highlights a systemic failure to provide individualized support for visually impaired students. This lack of customization can severely hinder the learning process, as visually impaired students may struggle to access and engage with materials that are not adapted to their needs.

Need for Comprehensive Accessibility Policies: The data underscores the urgent need for comprehensive policies that mandate the customization of educational materials to meet the diverse needs of all students, including those with visual impairments. Such policies should not only focus on the availability of materials but also their adaptability and relevance to individual learning preferences

and requirements.

Resource Allocation: The significant percentage of respondents noting a lack of customization points to possible issues in resource allocation. Institutions may lack the necessary funding, technology, or human resources to effectively customize learning materials, suggesting a need for increased investment in accessibility resources.

Awareness and Training: The survey results may also reflect a gap in awareness and training among educators and material developers regarding the importance and methods of customizing learning materials for visually impaired students. This indicates a critical need for professional development programs that equip educators with the skills to create and adapt materials that meet a wide range of sensory needs.

Collaboration with Experts and Students: The minimal instances of full customization reported suggest that effective practices do exist but are not widely implemented. Collaborating with experts in visual impairment and assistive technologies, as well as involving visually impaired students in the development and review process of educational materials, can lead to more effective and meaningful customization.

In conclusion, the results reveal a significant gap in the customization of learning materials for visually impaired students, pointing to a broader issue of accessibility in education. Addressing this gap requires a multifaceted approach that includes the development of robust policies, increased resource allocation, comprehensive educator training, and active collaboration with experts and students. By taking these steps, educational institutions can ensure that learning materials are not only accessible but also fully tailored to the diverse needs of all students, thereby fostering a more inclusive and equitable learning environment.

The overwhelmingly high percentage of respondents (89 per cent) indicating that digital platforms at their universities are not accessible and not designed with visually impaired users in mind (Option D) is a stark indicator of the significant barriers faced by visually impaired students in accessing educational content and services online. The fact that these platforms are described as having only standard tools suggests a fundamental oversight in the design and implementation of digital learning environments to accommodate the needs of all students. The absence of responses from the remaining 8 per cent could suggest a lack of awareness or experience with these platforms among some respondents, further complicating the issue.

As a researcher with extensive experience in the field of educational inclusivity and technology, this feedback points to several critical issues that need addressing:

Universal Design Principles: The data underscores a widespread failure to incorporate Universal Design principles in the development of digital platforms. Universal Design involves creating products

and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. The lack of accessible features indicates that these principles are not being adequately considered or implemented.

Assistive Technology Integration: The indication that digital platforms predominantly have only standard tools suggests a significant gap in the integration of assistive technologies, such as screen readers, text-to-speech software, and Braille displays. These technologies are essential for making digital content accessible to visually impaired users, and their absence severely limits the ability of these students to engage with digital learning materials and platforms effectively.

Training and Awareness: The overwhelming response pointing to inaccessibility also suggests a lack of training and awareness among those responsible for designing, selecting, and implementing these digital platforms. There is a critical need for comprehensive training programs that include best practices in accessibility and the use of assistive technologies.

Policy and Regulation: The findings indicate a need for stronger policies and regulations that mandate the accessibility of digital platforms in educational institutions. Such policies should outline clear standards and guidelines for accessibility and ensure that all digital learning environments are evaluated and adapted to meet these standards.

Collaboration and Feedback Mechanisms: The lack of accessibility highlights the importance of involving visually impaired students and accessibility experts in the design and continuous improvement of digital platforms. Establishing effective feedback mechanisms can ensure that the needs and challenges of visually impaired students are understood and addressed promptly.

In conclusion, the results reveal a critical need for educational institutions to prioritize the accessibility of their digital platforms for visually impaired students. Addressing this issue requires a multifaceted approach that includes the adoption of Universal Design principles, the integration of assistive technologies, comprehensive training for relevant stakeholders, the implementation of robust accessibility policies, and active collaboration with visually impaired students and accessibility experts. By taking these steps, universities can create more inclusive digital learning environments that enable all students to access and benefit from the opportunities offered by digital education.

CONCLUSION

The survey responses shed light on significant challenges faced by visually impaired students in accessing educational opportunities, particularly concerning assistive technologies, faculty and staff training, collaborative classroom activities, customization of learning materials, and the accessibility of digital platforms. The findings underscore a systemic issue within educational institutions, where the needs of visually impaired students are often inadequately addressed, leading to barriers in their learning

and participation.

A notable concern is the lack of assistive technologies and the inadequacy of faculty and staff training to support visually impaired students effectively. This shortfall not only limits the students' ability to engage with educational content but also affects their participation in collaborative activities, further isolating them from the learning community. The customization of learning materials, or rather the lack thereof, highlights another critical area where institutions fall short, providing materials that are often not tailored to the unique needs of visually impaired students, thereby impeding their learning process.

Moreover, the overwhelming indication that digital platforms are not accessible to visually impaired students reveals a glaring oversight in the adoption of universal design principles and the integration of assistive technologies in the digital infrastructure of educational institutions. This lack of accessibility not only hinders students' ability to access educational content but also affects their overall academic experience and success.

The survey results call for a multifaceted approach to address these issues, emphasizing the need for comprehensive policies, increased investment in resources, professional development for educators, and the active involvement of visually impaired students in the development and evaluation of educational materials and platforms. By fostering a culture of inclusivity and collaboration, educational institutions can ensure that all students, regardless of their physical abilities, have equal opportunities to learn, grow, and succeed.

In conclusion, the insights from the survey highlight a pressing need for educational institutions to reevaluate and enhance their support systems for visually impaired students. Addressing the identified challenges requires a concerted effort from all stakeholders to create an inclusive and equitable educational environment where every student has the tools and support necessary to achieve their full potential.

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EXPLORING BARRIERS TO TEACHING SCIENCE TO HEARING IMPAIRED LEARNERS IN LESOTHO SECONDARY SCHOOL

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ABSTRACT

Globally, there is a strong advocacy for including all learners in the education system, irrespective of their disabilities. This initiative, known as Education for All (EFA), is articulated in policy documents across different countries. Lesotho has actively embraced this international protocol by welcoming learners with diverse needs into its educational fold. This inclusivity extends to hearing-impaired learners (HIL), who now have the opportunity to study all subjects, including Science. Science is considered pivotal in cultivating critical skills essential for addressing societal and economic challenges, making it a mandatory subject at the secondary level in most countries among which is Lesotho. However, teaching Science to HIL presents unique challenges.

Notably, HILs often face language deficiencies, and Science, being an abstract subject, relies on verbal communication for effective learning. This linguistic barrier contributes to suboptimal performance not only among HIL but also among learners without disabilities in various schools. To explore teachers' views on the barriers they experience when teaching science to hearing-impaired learners in Lesotho secondary schools. Semi-structured interviews were conducted with four Science teachers. The collected data underwent content analysis, employing both the opportunities to learn and a capabilities framework to understand teachers' difficulties encountered. The study revealed that language is a primary obstacle to the effective teaching of Science to HIL. In response, teachers employ diverse teaching approaches to facilitate learning for HIL, although these strategies often prove time-consuming. In light of these findings, the study recommends comprehensive in-service training for teachers to enhance their preparation for teaching HIL effectively. Additionally, teachers should be

equipped with the skills to integrate Information and Communication Technology (ICT) into their teaching methods, allowing HIL to learn at their own pace. Furthermore, encouraging regular teachers to learn sign language can aid in detecting and addressing misconceptions among HIL. It also appeared that sign language interpreters should receive training in science subjects. In conclusion, addressing the language barrier is crucial for creating an accommodative learning environment for HIL in Science.

Keywords: *science teaching, opportunities to learn, education for all, hearing impairment, inclusive education, hearing-impaired learners, language barrier, teaching strategies, sign language, information and communication technology (ICT).*

INTRODUCTION

Salamanca's declaration endorsed by a majority of developed and developing nations asserts the importance of access to quality education for all learners irrespective of their disabilities. This inclusive approach has paved the way for students with various disabilities, including those with hearing impairments (HIL), not only to participate in education but also to engage in the study of science subjects. This educational practice is grounded in the perspective of Ahmad, Bokhari, and Waqar (2020), who argue that science imparts critical skills essential for learning, enabling HIL individuals to tackle the evolving challenges of the world. This aligns with Dewi & Wardani's (2018) assertion that proficiency in science subjects empowers learners to address real-life issues, as it equips them with high-order skills such as observation, critical thinking, and analytical capabilities. Being equipped with these crucial skills not only enables individuals to be problem solvers but also allows them to be lifelong learners. It is on this basis that globally science is recognized as a tool to address numerous socio-economic challenges prevalent in the 21st century (Kaluyu & Ndiku, 2020). The advocacy for "science for all" aligns with the Education for All (EFA) initiative, emphasizing that education is a fundamental human right (Madani, 2019). This initiative encourages the enrollment of every learner, irrespective of their diverse needs, in schools. Khan et al (2019) reiterate that this international protocol enables individuals including those with diverse needs like hearing impairments to actively contribute to community development. With this approach, many learners including those with HIL, are provided with the opportunity to gain a deeper understanding of science as a subject.

However, teaching science to HIL with deficient reading and writing skills poses significant challenges for teachers. According to Atika, Ediyanto, and Kawai (2018), these challenges make it difficult for HIL to comprehend abstract concepts. Additionally, a lack of research in the field of science teaching for HIL, as noted by Kang and Martin (2018), further complicates the understanding of challenges associated with teaching and learning science for this group. Consequently, the inability of teachers to effectively address these issues contributes to poor performance in science among HIL, as

highlighted by Meghdari and Alemi (2020). Given that science is inherently abstract and requires language and critical thinking skills, the question arises: how can one teach science to HIL who lacks the basic language skills necessary for engaging in critical thinking? It is on this basis that the study aims to answer the main research question that says; what are the barriers to teaching science to hearing-impaired learners in Lesotho secondary schools?

LITERATURE REVIEW

Teaching of science

There is a global concern that science is not well performed yet it is a subject that contributes massively to economic development. This may lie in the idea that teaching as important as it is, maybe a demanding task for teachers as they need not only to find resources relevant to diverse learners' needs but are also bound to manage their time well (Hankebo, 2018). This is based on a global shift that teachers should use a learners-centered approach when teaching science (Lehesvuori, Ramnarain & Viiri, 2017). With this approach, learners' differences are considered while actively engaging them in learning. Another approach advocated for the teaching of science is the use of experiments which assists learners to engage in deep learning of concepts and acquire high-order skills (HOS) such as observation and analysis (Dewi & Wardani, 2018). With this, learners are discouraged from recalling facts and are not considered passive receivers of information. Instead, learners are assisted in constructing knowledge in their minds (Bremner, 2021). These approaches require language skills, which are however deficient in HIL and need well-thought-out time management. I found it interesting to understand the challenges teachers are confronted with when teaching Science to learners with impairments.

While HILs are permitted to learn Science regardless of their deficiency in reading and writing skills, they are however lagging behind their counterparts (Baglama, Haksiz & Uzunboylu 2018). The implication is that the learning outcomes are not attained equitably by HIL and their counterparts, and the issue of access remains questioned. Besides that, Atika, Ediyanto, and Kawai (2018) bring another argument that HIL is challenged by abstract concepts. This is evidenced by low achievement in subjects such as Science that are not easy to understand when an individual is not well grounded in linguistics. Poor performance may also be because of teachers who cannot deal with the challenges they encounter when teaching HIL (Meghdari & Alemi, 2020). This suggests that teachers can identify problems that hinder HIL from achieving the proficiency level but due to inadequate or lack of pre-service and in-service training are unable to address such challenges in their classroom setting. Another contributory factor to HIL's poor performance could be a dearth of research in science teaching of HIL. This aspect, according to Kang and Martin (2018) makes it difficult for teachers to establish barriers hindering the effective teaching and learning of science to HIL. With this mentioned, one would have a reason to

understand that it is c to be in light of barriers that hinder the effective teaching of Science to HIL.

There is a global concern that Science is often poorly performed, and yet it is a subject that contributes massively to economic development. This may lie with the idea that teaching, as important as it is, maybe a demanding task for teachers, as they need not only to find the resources relevant to diverse learners' needs but are also bound to manage their time well (Hankebo, 2018). This is based on the global shift for teachers to use a learner-centered approach when teaching Science (Lehesvuori, Ramnarain & Viiri, 2017). With this approach learners' differences are considered while actively engaging them in learning.

Another approach advocated for the teaching of science is the use of experiments that assist learners to engage in deep learning of the concepts and to acquire high-order skills (HOS) such as observation and analysis (Dewi & Wardani, 2018). Learners are discouraged to only recall facts and should not be considered passive receivers of information. Instead, learners are assisted to construct knowledge (Bremner, 2021). These approaches require language skills, which are often deficient in HIL and time management needs to be well thought about. It is on this basis that I found it interesting to understand the barriers teachers are confronted with when teaching Science to learners with hearing impairments.

Teaching science to learners with impairments

As previously stated, Salamanca's statement declares that all learners should be at school regardless of their disabilities since education is regarded as a human right (UNESCO, 1994). This initiative has enabled learners with impairments to study alongside their counterparts. Concerning HIL's progress in school, Kang and Martin (2018) indicate that when given an enabling environment, they can do well in science like their counterparts. In the same study, the authors found that teachers realized that learners with impairments have different abilities and are unique. This relates to the study that learners with hearing impairments are not cognitively challenged but can learn and achieve like their counterparts. Teachers' role is to know their learners' capabilities and ensure that the teaching and learning environment is conducive for every learner. The implication of this is that how best HILs need to be taught is dependent on teachers' decisions and abilities to address barriers they are faced with which goes along with how best they have been prepared to teach learners with impairments.

Even when teachers have understood and embraced Education for All, there can be challenges with their teaching when their in-service training has not adequately prepared them to teach learners with impairments (Aas, 2020). This shows that a positive attitude alone is not enough when teaching learners with impairments, and teachers' competence is an important attribute to consider. According to Zhang, Admiraal, and Saab (2021), quality teaching increases learning opportunities. Both pre-service and in-service training are essential in shaping a teacher to provide not only quality Education for All

but also make education accessible to all learners. The implication is that teachers should not only be competent with the subject matter, but they also need to know how to teach and address the learning needs of learners with impairments.

TEACHING SCIENCE TO HIL.

As previously stated, Science is a subject that equips learners with 21st-century skills (Sabry, Darwis & Fathallah, 2020). It is globally essential to be studied by every learner, including HIL, so that they can contribute positively towards economic development. According to Ross, Yerrick, and Pagano (2020), HILs give equitable access to quality education and denote that HILs' disabilities do not limit them to quality education.

It is worth mentioning that even though HILs are often deprived of language skills and tend to lag behind their counterparts, they can do well in the sciences when appropriate methods are used (Atika et al., 2018). It should be highlighted that there are challenges experienced when teaching HIL but that does not mean that teachers cannot accommodate them. Parveen (2017) found that inquiry-based learning is the best approach when teaching HIL, especially when compared to a lecturing method. The HIL learns better through doing or when actively engaged in learning without using a sense of hearing. It is further supported by Liu (2020) and Rodrigues et al. (2022) that since HIL depends on the senses of sight and touch, teaching approaches should be inclined towards visual methods and the use of tangible objects.

Rusyani et al. (2021) find that mind maps are not only effective when teaching Science to HIL, but they also motivate them to learn it. The learners' eagerness to learn is an important aspect that needs to be considered since it increases their opportunities to learn. Another approach hailed as being effective when teaching HIL is the use of experiments that enable learners to acquire scientific skills (Dewi & Wardani, 2018), which are essential for solving the ever-changing problems of this world.

It further explains that the environment stimulates an individual's learning (Kumatongo and Muzata, 2021). The acquisition of knowledge within a convenient learning environment initiates the formulation of ideas and understanding of concepts. Based on this, the Science laboratory is considered an appropriate space for teaching Science, since it allows concepts to be more easily understood (Sahin-Kalyon, 2021). At Science laboratories, learners are exposed to experiential learning, where they engage several senses in the gathering of information essential for their learning.

Additionally, the use of ICT further improves accommodation strategies for HIL (Zafar et al., 2021). ICT is an educational tool effective for resolving challenges revolving around the teaching of HIL, thus increasing opportunities to learn. For instance, when teaching HIL there is a need to have an interpreter to assist the regular teacher when executing the lesson. Even though this is a required

accommodative strategy, regular teachers rely on interpreters who arguably lack content knowledge (Atika, 2018). According to Zafar et al. (2021), an ICT device called Avatar can be used to address this challenge and replace the interpreter. This device enables direct communication between the teacher and the HIL, as it writes the English language in sign language.

CHALLENGES OF TEACHING SCIENCE TO HIL

Even though EFA advocates for quality education for everyone, teaching hearing-impaired learners remains a challenge for most teachers. It may lie with their language difficulties, which, according to Lucas (2018) continue to impede learning opportunities. It is also evidenced by HIL's presence in science lessons where they are unable to show an outstanding performance due to the many challenges that confront teachers. The implication is that 'education doors must be open for everyone and provide access to quality education. Hence, it is crucial to investigate and understand teachers' challenges so that they can be addressed in different educational settings.

Raven and Whitman (2019) indicate that teaching HIL can be challenging when teachers disregard the ways HIL can access information such as a need for a repetition of concepts and the use of visual aids.

RESEARCH METHODOLOGY

This study is part of the study that explored science teachers' experiences in teaching HIL in Lesotho secondary schools. The main research question for this study is: What are Science teachers' challenges when teaching learners with hearing impairment? The paradigm selected for this study is interpretivism since it enables the researcher to go deeper into the phenomenon under discussion (Alharahsheh & Pius, 2020). Additionally, this study employs qualitative study which Cleland thinks (2017) is the approach that allows the researcher to understand the phenomenon under discussion in a real-life setting. Four teachers were interviewed in their schools to understand the challenges they face when teaching Science to HIL. Data generated from this sample was analyzed and interpreted as four case studies. Creswell (2019) shows that case studies enable the researcher to dig deeper into the subject under discussion and were considered appropriate to be used for this study.

Semi-structured interviews and document analysis were used to generate data as Yin (2018) emphasizes that different data sources can be used to improve the credibility of the study. Interviews were used because they give participants the liberty to explain in detail areas that they feel are important or interesting (Roulston & Choi, 2018). Semi-structured interviews were therefore considered the best way of collecting data so that teachers could explain in detail what they think are their main challenges when teaching HIL. It is not a yes or no interview; it enables the researcher deeply understand the

phenomenon under discussion. Although the researcher probed the interviewee, some questions were developed to guide the conversation. The data was transcribed, coded, and categorized into themes that responded to the research questions. According to Rich et al. (2018), this is called content analysis. Both inductive and deductive approaches were used to analyze data. With the inductive approach, data was transcribed, read, and themes assigned, while the inductive approach occurred when themes were aligned with the research question, literature review, and conceptual framework. According to Cohen et al. (2018), these approaches are called an inductive-deductive approach.

DISCUSSION OF RESEARCH FINDINGS

As stated earlier, the responses of four Science teachers in secondary schools teaching learners with hearing impairments were interpreted as constituting the challenges of teaching Science to HIL. Pseudonyms were assigned to the teachers who participated in this study as an ethical consideration. The biography of the participants is as follows: Mr. Thuto has a Bachelor's degree in Science Education and majored in Physics and Mathematics. He teaches Physics across all grades and has one learner who cannot hear or talk. Mpho has a Bachelor's degree with Physics and Mathematics as her main subjects and has ten years of teaching experience. Mr. Tsolo holds a diploma in Science Education with Biology and Chemistry as major subjects. Tsolo is a young teacher with three years of teaching experience. Lastly, Mr. Nare holds a diploma in Science Education, who majored in Physics and Mathematics, and has two years of teaching experience. All these participants are Science teachers for HIL.

Mpho showed that HIL's replacement in class is a crucial factor to be considered so that they can see the interpreter. She explained:

We usually arrange them in the first two columns so that they can see the interpreter. The arrangement is also for us to stand without shading the HIL.

Placing HIL in front is stated to be more crucial even in Mr Nare's classroom which did not have interpreters. He explains, " I place the HIL in the front seat of the classroom so that he/she could hear me". According to Kumatongo and Muzata (2021), it enables HIL to utilize their residual hearing. Additionally, Mr. Thuto indicates that teaching HIL required him to use experiments that allowed them to get the ideas with ease. However, he showed that the use of experiments consumes much time:

You may find that in classes with HIL, I am a little bit behind comparatively regarding the coverage of syllabus materials. But it is impractical to help during the lesson since the given time is the same. So, you will find that the same experiment I have to do takes double the time in a class with HIL compared to what I did in the rest of the classes. So, it takes time.

The extract above indicates that even though experiments promote learning amongst HIL, they require much time to be spent on them. With this, there is a likelihood that teachers may not complete

the syllabus as expected by the Ministry of Education (MOET).

The timing issue was also raised by Mpho, who says that teaching HIL requires her to work slowly and repeat concepts, but it is time-consuming. She explains:

The best way to teach deaf learners is to be slow, repeat whatever you say several times, and have more activities for them to understand, but this takes much time. Apart from that, you will note that some learners no longer follow you since it takes them much time to understand what is being said. At the same time, you cannot pass to the next topic.

Mpho shows that not only is the aforementioned teaching strategy time-consuming, but it is also having negative effects on learners who have no difficulty hearing but are bound to listen repeatedly to concepts they have already understood. This time issue puts teachers in a dilemma, as they know that rushing through concepts can never benefit HIL, while at the same time, they are at risk of not completing the syllabus.

Mr. Tsolo also touched on the issue of time that being slow accommodates HIL, but there is a risk of being unable to finish the syllabus within the year. He explains:

It is not easy to do the whole syllabus within the year because we have to go slower for deaf learners to understand everything in the syllabus. However, the pace increases with the use of videos and charts. The other thing that we need to do is to reduce the syllabus since it is too much.

The above-mentioned extract shows that some teaching approaches must be relaxed. Tsolo insists that the syllabus is bulky and should be reduced. Nare implies that HIL, unlike their counterparts, needs two years to learn the content allocated for each grade.

Nare also thinks that even though discussions are essential for clarifying concepts, they are time-consuming when one uses them for teaching HIL because they cannot hear. The extract below explains the negative consequences of using a discussion method in a class integrating HIL:

Another challenging part of the discussion method is that it wastes time. It is because before moving to the next concept, I get back to him and ask, did you hear? And then he said "yes". And if I ask him to tell me what I said, I always find that he did not hear anything. With that, I always have to go back and start afresh.

The extract above shows that Nare is cognizant of strategies that do not work for the HILs. He presents this as a challenge because it works well for most learners but does not benefit HIL due to their impairment.

Another challenge mentioned by participants is that sign language interpreters pass misconceptions on to HIL because they are not competent with the subject. Mrs. Mpho explained:

Sometimes, you will find that the message the interpreter is conveying is not what you said. It is observable that when you ask questions, you will see that the way learners get answers incorrectly is

because of the information they got. Not that they did not understand the concept. You will see that misconceptions come right away from the interpreter.

When regular teachers are not conversant with sign language, there is a possibility that HILs can get the wrong information from the interpreters without being rectified. That is congruent with Atika's (2018) observation that teachers depend entirely on interpreters who arguably lack content knowledge, so mistranslation can happen.

Tsolo also adds that sign language interpreters do not have a deep understanding of scientific knowledge and often cannot assist HIL. He explained:

I also realized that these interpreters explain concepts even when they do not have a deeper understanding of what you are saying. However, you would find that deaf learners have understood what has been said and assist the interpreter with concepts that are not clear to them.

The extract above shows that even though the interpreters' role is to assist HIL, they fail to do so due to limited knowledge of the subject matter. This implies that there are accommodation strategies that can compromise learners' opportunities to learn even though their initial intentions were basically to assist HIL in acquiring the information communicated in class. This shows that not all opportunities to learn can bring change to HIL learning.

Another issue is that sign language lacks vocabulary and it becomes difficult for interpreters to translate information communicated by the regular teacher. Mpho clarified:

Sign language interpreters encounter problems when teaching science due to the limited sign language vocabulary. This compels interpreters and HIL to come up with their signs. The sign depends on how they understand the word and they make a picture of that like the wave. For instance, when signing the wave with the hand, always when we talk about the wave they make that picture. The only problem with this arrangement is that you will find that interpreters have not agreed on invented signs across all classes, consequently, learners sign words differently.

The extract above shows that limited vocabulary in sign language creates yet another challenge for interpreters to clearly explain the information communicated by the regular teacher. As a result, HILs often consider creating new signs for the Science terminologies, but this consequently creates yet another challenge because, in the long run, they cannot communicate with other HILs in other classes or another school.

CONCLUSION AND RECOMMENDATION

The study concludes that language is the main barrier when teaching Science to HIL. The study also reveals that teachers are doing their best to present opportunities that can increase HIL's chances of doing well in the Sciences. However, due to limited time, these accommodations appear to be ineffective.

It is recommended that in-service training should adequately prepare teachers to teach HIL. The study shows that it is important that teachers know sign language even when they cannot teach and sign at the same time, but that would enable them to see when interpreters are not communicating messages conveyed by them. All learners should be taught sign language as a subject to deepen their understanding, as suggested by the Lesotho Language Policy (LELP) (MoET, 2018). Besides this, the use of ICT is one aspect that needs to be utilized in the education system to teach HIL to encourage their best capabilities and to achieve the learning outcomes within what is stipulated.

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UNDERSTANDING THE EMOTIONAL IMPACT OF ADHD IN PRIMARY SCHOOL STUDENTS

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ABSTRACT

Today, a remarkable place in society is occupied by children who need special conditions of education and their inclusion in schools, which determines the peculiarities of the organization of education. In all historical eras, the development system of special education has been connected with the socio-economic structure of the country, the state's value system and society, and the state's policy towards children who have developmental problems.

The article highlights children with special educational needs, especially children with attention deficit and hyperactive behavior syndrome. Children with attention deficit and hyperactivity disorder are included in the inclusive education system, and the organization of their educational activities, their inclusion in schools is considered an important and primary issue. To organize the effective teaching of hyperactive children, it is necessary to study the features of the emotional sphere of these children, which will make it possible to identify their strengths, highlight their problems, and accordingly organize their education more effectively, as well as interpersonal interactions with classmates in public schools. At present, the syndrome of attention deficit and hyperactivity is the subject of study of many psychologists, because the features of the emotional sphere of these children are not so well studied.

Keywords: *attention deficit and hyperactivity syndrome, ADHD, empathy, behavioral disorders, conflict, developmental problems, emotional sphere, socially mediated fears, children with special educational needs, system of inclusive education, impulsive type.*

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is a common neurodevelopmental condition affecting millions of children worldwide. While often recognized for its impact on focus and behavior, ADHD can also significantly influence a child's emotional well-being. Attention lack and hyperactivity syndrome is a more widespread neuropsychological disturbance a lot meeting among boys, and

compared with girls the structure is from 3:1 with a ratio of up to 9:1 (Evert, et. al., 2013). ADHD begins at children's age and is expressed with factors such as hyperactivity, forgetfulness, attention Decentralization, impulsiveness bad control, and dispersion (Romanov & Fesenko, 2010).

ADHD affects millions of children globally. Beyond impacting focus and behavior, ADHD can significantly influence a child's emotional well-being in primary school (ages 6-12). This exploration delves into the emotional challenges faced by children with ADHD, such as frustration, low self-esteem, and difficulty regulating emotions. Understanding this connection is crucial for providing effective support and fostering their emotional development (Barkley, 2014).

Brain injuries, psychosocial factors, and adverse factors during childbirth also play a major role in the occurrence of hyperactivity. A frequent factor is fetal oxygen deprivation during pregnancy, to which the developing brain is most sensitive. Toxic pregnancies are also dangerous. The mother's fear, and anxiety during the 12-22 weeks of pregnancy leads to the development of hyperactivity. In hyperactive children, such a concept as executive dysfunction (dysfunction of controlling behavior) is distinguished, which appears against the background of brain immaturity and is manifested by insufficient activity of inhibitory structures (Barkley, 2014).

Children with hyperactivity often struggle with managing their actions and thoughts. This broader ability to control oneself and guide behavior toward achieving goals is known as executive function.

Several aspects of executive function can be affected in hyperactive children:

- **Difficulty controlling impulses:** Acting without thinking things through.
- **Trouble restraining urges** and inability to resist immediate desires.
- **Challenges organizing impulses:** Difficulty prioritizing and sequencing actions.
- **Problems managing mental processes:** Difficulty focusing and maintaining attention.

The next section likely discusses the predicted consequences (forecast) of these impairments.

Here's a breakdown of the improvements:

- **Simpler language:** Replaces "control function" with "managing actions and thoughts".
- **Clearer connection:** Explains the link between the control function and the executive function.
- **Bullet points:** Maintains the list format for clarity.
- **Anticipation:** Mentions the potential discussion of consequences in the next section (Monina, Lyutova-Roberts, Chutko, 2007).

Compared to children with hyperactivity, children with attention deficit disorder have many fears. In children with inattention, anxiety increases with increasing guilt, which increases the number of fears (Fesenko & Fesenko, 2022).

Although specialists dealing with the problem of attention deficit hyperactivity disorder state that

these children have a large number of fears, the psychological features of the manifestation of fears are still not well studied. However, analyzing the features of the emotional sphere of these children, it can be assumed that the emotional manifestations (aggression, anxiety, fears) of hyperactive children are interrelated (NIMH, 2023).

In children with attention deficit disorder, emotions are shallow and unstable. They are often nervous, and tense. The emotional sphere of these children is poor. Depending on whether hyperactivity, inattention, or impulsivity predominates in hyperactive children, the characteristics of the emotional sphere are different.

Children with a predominance of inattention are more likely to flare up, be rude, and irritable. These children experience guilt more than children with predominant hyperactivity. Anxiety, irritability, willingness to harm others, and verbal abuse increase with the increase of guilt in children with the dominance of inattention. With the predominance of inattention, children experience negative emotions within themselves, which are associated with the scolding of parents and teachers. Aggression and fear in these children can lead to various depressive disorders and addictions at an older age (Fadina, 2004).

Zakharov (2004) mentions fear as a unique way to recognize the surrounding reality. Fear can play a certain socializing or teaching role in the process of forming an individual. The word "fear" coincides with the term "anxiety". But anxiety boils down to a negative emotional state that arises from a dangerous situation. Fear implies the existence of a certain object, person, or event that scares you. Most of the children's fears are related to age characteristics, are age-related and disappear if we correctly approach the causes of their occurrence.

Parents often do not understand what is happening with the child, but their behavior is disturbing. Unaware of the hereditary nature of ADHD, they attribute their child's behavior to "wrong" parenting and blame each other. Improving the child's emotional sphere depends not only on treatment but also on a kind, calm, consistent attitude. These children fail to consider the bad, negative, and even dangerous consequences of their behavior that may be associated with their actions. Often they expose themselves to unwarranted, unsolicited risks to demonstrate their bravery to their peers. As a result, there are many unfortunate incidents. They have problems in interpersonal relationships (Fesenko & Fesenko, 2022).

METHODOLOGY

From the analysis of the scientific literature, it becomes obvious that the emotional sphere is quite affected in children with the syndrome of attention deficit and hyperactivity. The article presents a quantitative type of research, which was carried out among 20 children with ADHD and 20 non-disabled children. The choice of this scheme is because it allows us to study more in-depth the most expressed type of fears among children of primary school age with ADHD. As the basis of research, the main

method of conversation was chosen, as well as the methodology of Zakharov's "Fears in the houses" (Kolyagina, Odriozola & Eremina, 2021; Panfilova, 2002) has been implemented to get the full picture.

DATA ANALYSIS AND FINDINGS

By analyzing various types of data, it is possible to gain deeper insights into the characteristics, causes, and potential treatments for ADHD, ultimately aiming to improve the lives of individuals affected by this condition. For this purpose, the following quantitative research is conducted with primary school-age children.

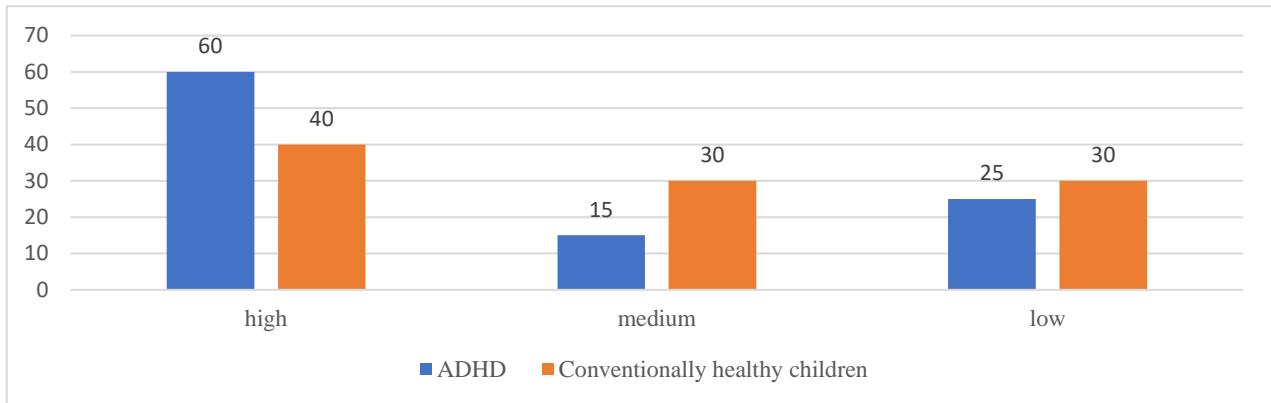
During a conversation with parents of children with ADHD, they noted that children are conflicted, naughty, and exhibit aggressive behavior both at home and in the environment. Parents also noted that children avoid contact with peers, and nightmares were also observed. In the course of psycho-correctional work with children of primary school age, we noticed that children have a negative attitude toward themselves and their peers. During the conversation, it turned out that children with ADHD stated that both parents and peers complain about their behavior, adding that no one understands them.

To assess fears in older primary school-age children, the study employed Zakharov's "Fears in the Houses" questionnaire. The questionnaire was adapted to identify fears relevant to this age group. Within the frame of this, the child participated in a game-like setting. Children were asked 10 questions to gauge their expressed fears. At the same time, children could respond in two ways: verbal answer (providing a brief answer if comfortable speaking) or non-verbal response (pointing to pictures depicting the fear; catering to children with speech impairments by offering an alternative to verbal communication).

The "Fears in Houses" method among 20 children with ADHD and 20 non-disabled children have been conducted. By comparing the obtained results, we conclude that 60% of children with ADHD have a high number of fears and 40% of "conditionally healthy" children have a high number of fears. It can be assumed that the high number of fears in both groups is due to age characteristics, as well as the younger schoolchild, begins to adapt to the social environment independently without the active help of parents (Figure 1).

Zakharov's "Fears in the House" methodology also provides an opportunity to group fears, identify types of fears, and see the features of their manifestation.

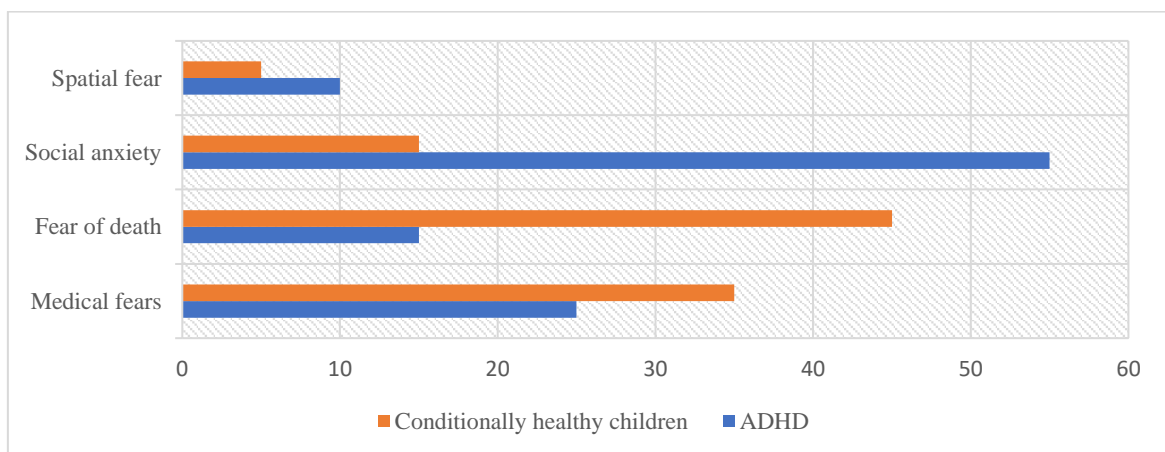
Figure 1.
The number of fears.



The mentioned indicators cause very serious thoughts, which is evidenced by the fact that social fears prevail in children with ADHD: fear of parents, teachers, peers, and a new environment. These children often violate social norms and are repeatedly punished by the environment. After each action, children are afraid of a negative reaction from the environment, which causes psychological problems in interpersonal relationships, because of which a child with ADHD begins to conflict with the surrounding people. To avoid conflict, a child with ADHD begins to alienate himself from society, which causes social fear. "Conditionally healthy" children have a fear of death and medical fears, which, in our opinion, is considered the age norm (Figure 2).

This information establishes a correlation between ADHD and social anxiety. However, it doesn't necessarily prove that ADHD directly causes social anxiety. Other factors might be involved. The explanation points towards social difficulties as a potential trigger for social anxiety in children with ADHD. Further research is needed to explore the exact mechanisms at play.

Figure 2.
Types of manifestation of fears.



Thus, according to our results, hyperactive children have a greater amount of social anxiety compared to non-disabled children. It is explained by the fact that children with ADHD have a lot of problems in the social environment, in interpersonal relations, when communicating, and this is the basis for the emergence of social fears.

The study suggests that hyperactive children experience greater social anxiety compared to children without ADHD. The explanation proposes that social difficulties faced by children with ADHD (e.g., communication challenges, and trouble interacting with peers) contribute to the development of social anxiety (NIMH, 2023; Fesenko & Fesenko, 2022; Barkley, 2014).

CONCLUSION

Thus, based on the findings of the research it becomes possible to state that children with ADHD have:

- both emotional and behavioral disorders are combined and affect the child's learning process and social adaptation.
- high level of fear - social anxiety is a specific condition characterized by the fear of social situations, not necessarily a general "high level of fear";
- social fears prevail - this statement aligns with the potential link between ADHD and social anxiety;
- insufficient awareness on the part of the environment about the behavioral characteristics of the latter, which is the basis for these children to feel misunderstood and unaccepted - this is a valid point, raising awareness and providing support for children with ADHD in various settings (schools, families) is crucial;
- high level of conflict - while children with ADHD might face social challenges leading to conflict, it's not a universal experience.

Still, it is crucial to emphasize that the study identifies a correlation but doesn't establish a direct causal relationship between ADHD and social anxiety. Outlining the importance of comprehensive support, it is crucial to advocate for addressing both ADHD symptoms and potential co-occurring conditions like social anxiety through evidence-based interventions

RECOMMENDATIONS

The research suggests a potential link between ADHD and social anxiety in children. This can manifest as social fears and difficulties in social interactions. Limited understanding of ADHD by the surrounding environment can contribute to feelings of being misunderstood and potentially lead to social conflict. Early intervention, addressing both ADHD and potential co-occurring conditions like social

anxiety, alongside fostering a supportive environment that offers understanding and appropriate accommodations, is crucial for promoting the social and emotional well-being of children with ADHD.

As additional considerations, it might be required to emphasize the importance of seeking professional guidance from mental health professionals experienced in treating ADHD and co-occurring conditions. At the same time, focus on the potential for positive outcomes with proper support and intervention strategies should be taken into account.

By providing a more accurate and nuanced interpretation of the information, the conclusion effectively acknowledges the potential challenges faced by children with ADHD while highlighting the importance of comprehensive support and fostering a more understanding environment.

Further research is recommended through exploring the underlying mechanisms that contribute to the development of social anxiety in children with ADHD.

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ENHANCING SOCIAL CONNECTION AND SITTING SKILLS IN CHILDREN WITH AUTISM

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ABSTRACT

The commented issue is intended for all specialists carrying out special pedagogical work, and especially speech therapists, who during their speech therapy classes often deal with hyperactivity and negative behaviors: aggression, self-aggression, as well as self-restrained children and adolescents.

The research of the presented phenomena and the search for coping solutions by the speech therapist may seem unacceptable to some specialists because the work carried out on overcoming aggressive manifestations, and the rejection of any proposed method of communication are considered the subject and object of the study of psychologists. However, the unprecedented frequency of these phenomena during speech therapy classes allows us to address the researched phenomena from a speech therapy perspective as well, because aggressive manifestations and especially disobedience to the specialist and rejection of all possible forms of contact can be an obstacle to speech therapy intervention with children and adolescents with autism syndrome.

The application of the necessary steps for the formation of emotional contact during the speech therapy classes presented in the article, as well as the creation of special conditions, document their unique role in terms of the effective implementation of speech therapy classes through experimental research.

Keywords: *hyperactivity, negative behavior, aggression, self-aggression, autism syndrome, emotional contact or contact, submissiveness, verbal and communication process.*

INTRODUCTION

The topicality of the presented issue is emphasized more because serious reforms are being implemented in the context of inclusive processes in the Republic of Armenia. As a result, children with many characteristics belonging to the autism spectrum and who are quite difficult to control begin to attend public schools. The audience, where educational, corrective and developmental work should be

carried out with such children, is sometimes not ready to accept and show a correct, effective approach to forming emotional contact and the ability to obey, which are, of course, the basis of corrective and developmental work.

Childhood autism is a complex pathological syndrome in which deficits in verbal processing are combined with difficulties or features in other higher mental processes. Moreover, those disrupted processes necessary for the life of children with autism syndrome are characterized by hierarchical or disproportionate development, which in the absence of corrective and developmental work started early can leave irreversible consequences in the socialization process of these children (Gilbert & Piters, 2005).

At the same time, practicing specialists can state that in recent years, during the implementation of speech therapy work, questions often arise that not only require a correct and immediate solution, but moreover, the effectiveness of further speech therapy work aimed at the formation of communication and speech processes depends on their solution and development.

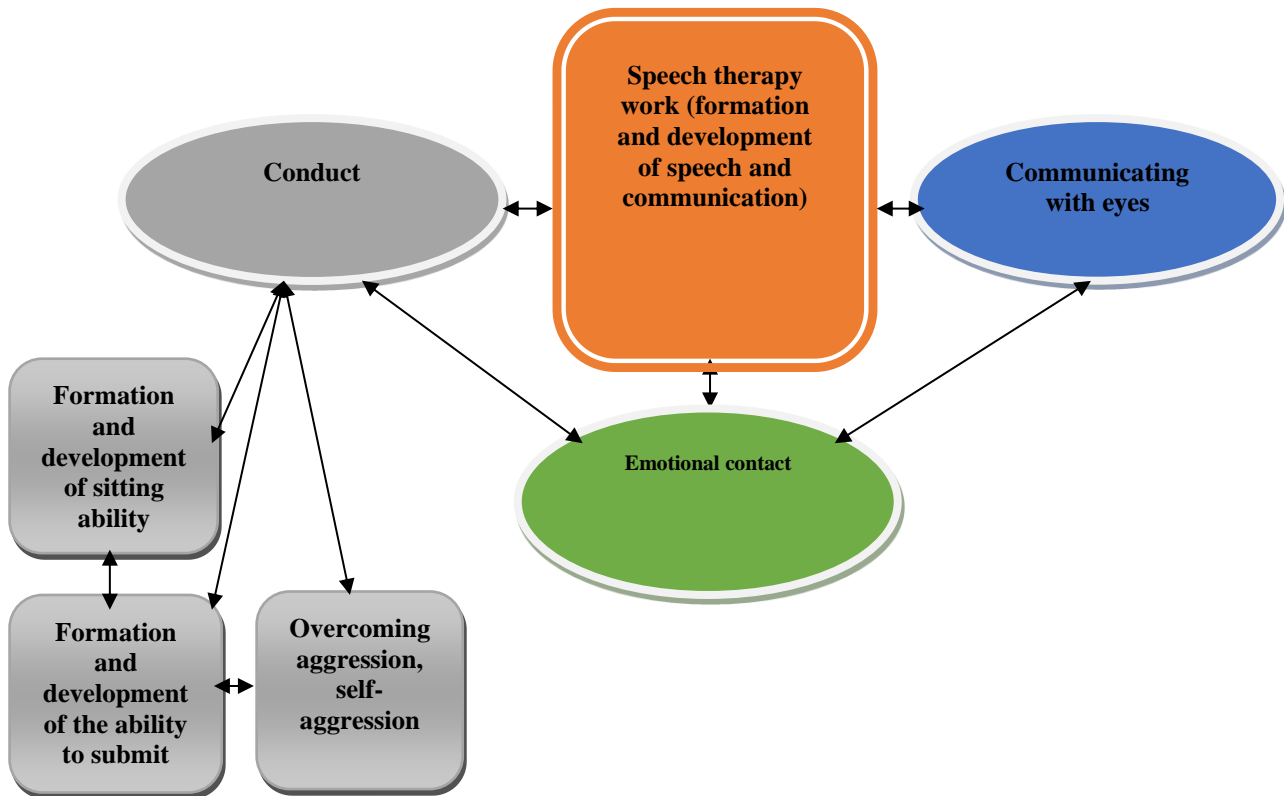
Many scientific sources available in the professional literature testify to the manifestations of aggression, maladaptive states, and inability to establish emotional contact in the case of autism syndrome (American Academy of Pediatrics, 2020; Bailey, Hatton & Skinner, 2020; Greenspan & Weeder, 2013; Lord, Rutter & Pickles, 2012; Gilbert & Piters, 2005)

Therefore, based on the fact that the multifaceted behavior disorders observed in children with childhood autism hinder the formation and development of already impaired verbal and non-verbal communication skills (Kafyan, 2011) as prerequisites for the formation and development of the speech and communication process, it is necessary to start the implementation of speech therapy works, pursuing the following goals (Figure 1):

- creating emotional contact or contact,
- appropriate: formation and development of positive behavior.
 - ✓ formation and development of the ability to sit,
 - ✓ formation and development of the ability to obey,
 - ✓ implementation of works aimed at reducing the forms and severity of aggression,
- formation and development of the ability to communicate attention or gaze.

Figure 1.

Prerequisites contributing to the formation and development of the speech and communication process of children with autism.



To implement the above prerequisites, special pedagogical methods and means aimed at overcoming these problems were developed and modified, as well as conditions were created, which were used throughout the experimental training organized by us.

METHODS

To prove the effectiveness of the presented objectives the research was conducted including 28 children with autism aged four to seven years old. As a whole, 14 of them were included in the experimental and 14 in the control groups.

Individual work was carried out with children with autism in the control group, based on the basic methodological skills of speech therapy in the game and learning processes. In the experimental group, the activities aimed at the development of the communication process of children with autism were carried out in the game and learning processes, first with individual and later also with the implementation of group lessons through the use of an exemplary speech therapy system developed by the researcher's group.

To form and develop the non-verbal and verbal communication abilities of these children through the use of an exemplary speech therapy system, we first started the implementation of speech therapy classes with the implementation of targeted works on forming and developing the ability to establish emotional contact or contact and sit.

Greenspan and Weeder (2013) state that to communicate, we need to communicate, feel at ease with others, and love the world of people. Therefore, we considered the creation of emotional contact as one of the primary steps for the formation and development of the speech and communication process of children with autism in speech therapy. For this purpose, we have started the implementation of speech therapy works by providing the necessary conditions for establishing emotional contact and applying the following features:

- necessary environment for children with childhood autism, where the feeling of security and trust have been created;
- if necessary, especially in the initial period of experimental training, parents/guardians or nannies of children were involved in the speech therapy sessions carried out by us;
- children were provided with a comfortable speech therapy room or space, free from noise and dangerous objects (sharp and piercing objects, breakable objects, etc.), as this is one of the first prerequisites for comfortable contact establishment;
- necessary and sufficient lighting, features of tactile contact have been provided and the individual characteristics of each child, and the ability to perceive stimuli by different analyzers have been investigated;
- various game situations were organized and implemented, relying on the individual characteristics of each child, attachment and inspiring confidence in children with childhood autism have been created;
- children with childhood autism were offered the use of didactic materials with interesting, bright color combinations, toys and modern information technology: tablets, computers, and phones, taking into account the individual characteristics of each of them.
- incentives were also chosen, through the use of which it was intended to find the edges of cooperation and increase the efficiency of work, taking into account the individual characteristics of each child;
- various traditional and innovative non-traditional speech therapy technologies were proposed and applied during the training;
- more complex forms of cooperation were searched, proposed and developed these forms of cooperation, thereby contributing to their active perception of the environment, the development of

expressive speech, and therefore the development of expressive speech and finally to the formation and development of the communication process.

- verbal echolalia and motor self-stimulation of children with autism were studied and tried to imitate them in the beginning, attracting attention in a similar way, looking for edges of contact to form a reproduction of verbal material.

It is very important to mention that in the initial period, the fixation of even one second of eye-eye visual contact by a specialist or even the execution of a basic instruction by a child was the greatest achievement for the formation of contact by the speech therapist. Which of course we have tried to make more frequent and more lasting. Any other forms of communication made by the child were also encouraged.

Any environment has its influence on the nature, preferences and why not the feelings of the individual living there. Therefore, it was necessary to get acquainted with the place of residence of these children, the conditions of the house, the structure of the family and the spheres of activity of the family members. Such information can also be obtained as a result of an interview with the parents of these children, and of course, it is much more effective to form a sensory connection and experience the environment in which a child with childhood autism grows up.

It is known that one part of children with childhood autism is characterized by hyperactivity, and the other by hypoactivity. Therefore, to carry out remedial and developmental work with these children, in particular, for the formation and development of speech and communication, it is first necessary, in addition to the establishment of emotional contact, to carry out purposeful work in parallel with the formation and development of the ability to sit. In order to develop the ability to sit, we used didactic materials with bright images, games, things, mobile phones, tablets, computers, and other objects that are interesting to children with autism, based on the child's characteristics. In order to increase the effectiveness of speech therapy work, we applied the following incentives to the classes.

- object incentives (doll, toy, phone, computer, etc.),
- verbal ("That's right", "You're welcome", "It's great", etc.),
- food incentives (chocolate, candy, any fruit, juice, etc.).

Incentives were used especially when children with childhood autism became more compliant or started to comply during speech therapy sessions, i.e. to sit for even a second at first and then for longer periods to work with the specialist. At the same time, work was also carried out on forming a direct execution of the instruction by a child with infantile autism in case of giving the instruction "Sit down" by a specialist.

RESULTS AND DISCUSSION

As a result of targeted, systematic and two-year speech therapy work, the following results were recorded. Thus, if before the experimental training, the "Sit" instruction given by the specialist was performed by 3 (21%) children with autism in the experimental group, sitting for 10-15 seconds and lasting up to 10 minutes, then after the experimental training, the indicated group the number of children fulfilling the instruction increased by 9, making 85% (12 children). At the same time, the duration of their sitting was also changed, from 5 minutes to 40 minutes. In the control group, a lower index was recorded in this direction: at the beginning, 4 (29%) and after two years 7 (50%) children with childhood autism were able to sit in the classes, and that was for a maximum duration of 30 minutes.

This means that Speech therapy significantly improved the ability of children with autism to follow instructions and sit for longer periods. Before therapy, only a small percentage of children could follow the "Sit" instruction and stay seated for a short time (10-15 seconds).

After two years of speech therapy, a much larger percentage could follow the instructions and sit for a significantly longer duration (up to 40 minutes).

The control group, which didn't receive therapy, showed a smaller improvement with fewer children able to sit for extended periods. This suggests that speech therapy can be a valuable tool in helping children with autism develop better attention and compliance with instructions.

CONCLUSION

A key and important prerequisite for the logo-psychological work described above is also to perform an analysis of the work done by the specialist after the training, regarding the successes achieved during the work and overcoming the targets that have not yet been achieved, the methods and approaches used. A deep understanding of the conducted training allows the specialist to correctly assess the situation and choose rational solutions to plan and implement further effective speech therapy work.

Thus, as conducted research indicated, the experimental training described above is aimed at creating and responding to emotional contact in children with infantile autism, in particular the formation and development of the ability to sit (also the duration of sitting). The implemented works contribute to increasing the effectiveness of speech therapy works aimed at the formation and development of the speech and communication process of children with childhood autism, as well as the socialization of these children.

In conclusion, effective speech therapy for children with autism requires ongoing analysis and adaptation. By evaluating successes, addressing shortcomings, and refining methods, speech therapists can create targeted interventions. As demonstrated by the experimental training, focusing on building emotional connection and core skills like sitting duration can significantly improve the effectiveness of

speech therapy in promoting communication, socialization, and overall development in children with autism.

This conclusion emphasizes the importance of ongoing evaluation and adaptation in speech therapy for children with autism. It highlights the example of the experimental training, showing how it addressed a fundamental skill (sitting) and ultimately contributed to broader communication and socialization goals.

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THE FUNDAMENTAL ISSUE OF CONTINUING EDUCATION IN SPEECH THERAPY

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Studies in medicine and sciences are constantly changing with the advancement of research and new discoveries. Continuing education in a field such as speech pathology is crucial for this reason. Most developed countries, like the United States of America and countries in Europe, make education after graduation mandatory and enforce restrictions on licenses in order to encourage people to renew them. Armenia, however, does not. For example, The American Speech-Language-Hearing Association (ASHA) requires all certificate holders (CCC-A and CCC-SLP) to maintain their ASHA Certificates of Clinical Competence and their CCC-SLP by taking additional courses every few years. Countries outside of the United States, such as Canada and Australia, have similar requirements of completing extra hours of practice and education in order to maintain the speech-language pathologist license.

Armenia also does not have a higher board or association that legally monitors and audits speech pathologists after graduation, but they should work to establish one in order to encourage and enforce speech pathologists to complete the requirements necessary to continue their practice. Armenia is trying to modernize and change the medical education system in order to advance their professional development and allow for the international mobility of healthcare workers, but they should also work to set requirements like these for the speech therapy field in Armenia. Continuing professional development allows for cardinal information that might have been forgotten over the years after graduating or receiving a license to be reviewed and recollected. With the introduction of new technologies and methods, speech pathologists need to be informed of the new ways of practice through their continuing education requirements. Speech pathologists in Armenia can use the opportunity of continuing education to learn how to use new methods such as Armav and incorporate them into their own practices.

Keywords: *Continuing education, speech therapy, speech-language pathologist, Armenia, American Speech-Language-Hearing Association (ASHA), professionals, practice, license, medicine,*

certification, restrictions, requirements, College of Speech and Hearing Health Professionals of British Columbia (CSHBC), harmonize, continuing medical education (CME), European, research, technology, Alternative Augmentative Communication (AAC).

INTRODUCTION

Studies in medicine and sciences are constantly changing with the advancement of research and new discoveries. With science fields continually evolving, schools tend to also modify their curricula to match with the more modern and relevant information surrounding the field. However, this also means that professionals who have already graduated and earned their licenses need to know how to keep up with these changes. For work surrounding medical sciences and patient care, it is important for medical professionals to continue education even after receiving a license in the profession in order to be able to adapt their practices to match the new research.

As defined by Longworth and Davies (1996, p. 22), lifelong learning is "the development of human potential through an ongoing supportive process that motivates and enables individuals to acquire and apply with confidence, creativity, and enjoyment in all roles, circumstances, and environments the knowledge, values, skills, and understanding they will require throughout their lifetimes" Knapper (1988, p. 105) defined it more succinctly as "the capacity to acquire knowledge from one's experiences and grow as an individual over time," assuming accountability for one's own educational development.

DISCUSSION OF THE TOPIC

In the field of patient care and medical sciences, it is critical that practitioners maintain their professional development beyond the acquisition of a license, so that they may be able to modify their methodologies to align with advancements in research. For the same reason, continuing education in a discipline such as speech pathology is essential. Many developed nations, including Europe and the United States of America, mandate postgraduate education and impose license renewal restrictions to encourage individuals to renew their licenses. Armenia, which does not mandate postgraduate education for speech therapists, should heed their example and follow suit.

My research is aimed at establishing regulations that pertain to the management and execution of assessments for certification in continuous professional development for Speech Therapists in Armenia. Armenia is among the many nations where further education is not mandatory for speech pathologists upon completion of their academic studies. Armenia possesses a robust academic education system and recognizes the significance of speech therapists in diverse domains; however, it does not possess a "unified system of continuous education" (Babayan, 2021). To remain current with the latest pertinent information in the field of speech therapy, a speech pathologist in Armenia must possess intrinsic

motivation and determination, as there is no external pressure to do so to maintain their licenses or secure employment.

Developed nations, such as the United States of America, have a strict system of continuing education in place, which persists beyond the attainment of a license and graduation, in contrast to Armenia. Medical professionals in disciplines such as speech therapy are required to demonstrate ongoing learning and education every few years to maintain their license to practice. This can be accomplished through various means, including attending educational conferences or enrolling in online courses. The American Speech-Language-Hearing Association (ASHA) offers various continuing education opportunities to all certificate holders (CCC-A and CCC-SLP). To maintain their ASHA Certificates of Clinical Competence, these individuals must fulfill a thirty-hour professional development requirement every three years (Requirements for Maintaining Your ASHA Certification, n.d.).

ASHA Certification Maintenance specifies the interval for maintenance. The completion of twenty-four hours of continuing education every two years, which corresponds to the time during which the license is renewed, is one of the additional conditions that must be met to complete the CCC-SLP (California Licensing Requirements for Audiologists and Speech-Language Pathologists, n.d.). Those who possess dual licenses and those who are licensed to practice audiology are subject to even more strict criteria for continuing education. Each of these requirements must be satisfied to follow the American Society of Health-System Administrators' (ASHA) code of ethics, which states that "Individuals shall engage in lifelong learning that is relevant to their professional activities and skills in order to enhance and refine their professional competence and expertise" (ASHA Code of Ethics Principle of Ethics II, n.d.).

There are professional bodies in every European nation that regulate the practice of speech therapy and jobs that are related to language therapy. For instance, in Australia, provisional and practicing speech-language pathologists have a minimum requirement of two hours of learning with professional support as well as two hours of cultural learning, all part of twenty hours of learning per membership year (Continuing Professional Development Requirements, 2023). Regulating the practice of speech therapy is a provincial or territorial institution or college in Canada. College of Speech and Hearing Health Professionals of British Columbia (CSHBC) and College of Audiologists and Speech-Language Pathologists of Ontario (CASLPO) are two organizations that are responsible for establishing standards, licenses, and continuing education prerequisites for speech-language pathologists in Canada. CSHBC, for example, requires a minimum of forty-five hours of Cs, or continuing competency credits, within a 3-year cycle is required for the first registration held. They even have additional restrictions on the number of credits that need to be earned following each topic (CSHBC Attaining and Maintaining

Practice Competence, 2023).

Under the Soviet Union, Armenia had centralized recertification and continuing education requirements for doctors and healthcare workers to implement in their practice. However, once Armenia gained their independence from the Soviet Union, these practices became lost. Currently, Armenia is trying to modernize and change the medical education system in order to advance their professional development and allow for the international mobility of healthcare workers (Chekijian et al., 2020). Speech therapy in Armenia needs to get on board with this modernization.

Armenia is making efforts to harmonize their CME, or continuing medical education, with the Europeans because doing so will allow Armenian healthcare workers to take advantage of learning and advancement opportunities abroad in Europe. If Armenia's CME/CPD model harmonizes with Europe's, then credits can be obtained at university hospitals and research centers abroad (Chekijian et al., 2020). Armenia's CME/CPD requirements for the medical-related fields include 220 credits every 5 years in order to recertify, however, there are no further specialty-based requirements. Requirements vary depending on the field, for example, pharmacists need 160 credits, nurses need 140, and pharmacists' assistants need 100 (Chekijian et al., 2020). Unlike the medical field, Armenia does not have a regulated CME program for speech therapy. The incorporation of a regulated CME program and harmonization with the European CME program is important to allow mobility speech therapists to study abroad and easily return back to their practice in Armenia. Continuing education in nations such as the United States not only makes continuing education mandatory, but also informs speech-language pathologists that they may be audited by associations such as ASHA and the Speech-language Pathology, Audiology and Hearing Aid Dispensers Board. This enforces stricter regulations that ensure and encourage a speech pathologist is complete their necessary amount of CCCs. Armenia, however, does not have a higher board or association that legally monitors speech pathologists after graduation, so it is up to the individual to decide whether they want to continue education independently, or not.

IMPLICATION INTO PRACTICE

Continuing education is so strictly imposed in advanced nations such as the United States, Canada, Europe, and more because it is crucial for both medical professionals and speech-language pathologists in their field. Continuing professional development, or CPD, allows for cardinal information that might have been forgotten over the years after graduating or receiving a license to be reviewed and recollected. However, recollection is only an additional benefit of continuing education; the main reason why nations require continuing education in fields such as speech pathology is because it is constantly evolving. With the introduction to new technologies and methods, speech pathologists need to be informed of the new ways of practice through their continuing education requirements because "what is considered to be the

best knowledge one day may later be found to be inadequate” (Continuing Professional Development: Building and Sustaining a Quality Workforce, 2010).

Acquiring the skill of successful learning is imperative for individuals working in scientific or medical disciplines. To support patients more effectively, it is critical to assimilate the new information uncovered by the ongoing advances in medical research and adapt clinical procedures to incorporate this modern knowledge. As an effort to promote the career-critical nature of lifelong, self-directed learning, numerous medical institutions instruct students on how to acquire knowledge independently and effectively utilize resources. Acquiring the ability to learn how to learn not only facilitates professionals' comprehension of formal education but also empowers them to derive value from their daily lives by equipping them with the critical and analytical capacity to evaluate such experiences and derive insights from them (Alsop, 2013). It is imperative that medical practitioners maintain an insatiable curiosity regarding their fields and "assume accountability for their own professional growth in consideration of their career objectives" (Alsop, 2013).

Continuing education can also be a way for practicing speech pathologists to become familiar with and certified to use new technologies in their field. In the United States and other European countries, there are advanced methods of Alternative Augmentative Communication, or AAC, that are used in practices in order to help nonverbal patients speak. Armenia has recently developed their first AAC application called Armav to help familiarize the nonverbal Armenian population as a means of communicating with their loved ones in their native tongue (Armav. app). Speech pathologists in Armenia can use the opportunity of continuing education to learn how to use new methods such as Armav and incorporate them into their own practices.

CONCLUSION

Even being informed with the most up-to-date knowledge and education, medical professionals will never truly understand everything pertaining to their field because a lot of information may not be discovered yet. For this reason, it ought to be obligatory for medical professionals and speech pathologists in every nation to be able to educate themselves on the most recent discoveries and to be able to examine information that is both outdated and still pertinent. They need to be aware of how to modify their procedures so that they are compatible with the contemporary research that is considered acceptable today. Making it essential for medical professionals to renew their licenses and participate in continuing education, will encourage them to remain current with their practices, which will ultimately result in environments that are more efficient and provide better care to patients.

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**THE ANALYSIS OF POSTURAL DYSFUNCTION OF CHILDREN WITH CEREBRAL
PALSY IN ELEMENTARY SCHOOLS FROM THE OCCUPATIONAL THERAPY
PERSPECTIVE**

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ABSTRACT

The study aims to explore the influence of supportive and challenging factors of the educational environment on the positioning problems of children with Cerebral Palsy.

The study is based on qualitative methodology. Semi-structured interview and observation methods were used for data collection. An interview was conducted with 8 teachers working at the school and members of the pedagogical psychological team members, as well as difficulties in body structure and posture control were observed for 8 children having Cerebral Palsy. Data analysis of the study was carried out using the descriptive method.

The results of the research data analysis proved the important prerequisites for overcoming the problems concerned with maintaining the body structure and keeping posture control. Mostly the importance of supportive educational environmental factors was considered to be more significant.

Also, as an essential component had been identified the need for a personal assistant for the learners, the importance of supporting team members' positive attitude, and continuous training for the members of the pedagogical psychological team members. In addition, the need to use mutually agreed approaches and joint work was also vital for ensuring the effectiveness of rehabilitation work and having positive results.

Keywords: *cerebral palsy, positioning, posture control, educational environment, occupational therapy.*

INTRODUCTION

It is well known that as a result of Cerebral Palsy (CP) a person's ability to carry out autonomous and independent living activities is limited and, in particular, difficulties in controlling purposeful movements and coordination are common to all children with CP (Graham, & Selber 2003). Since the control of body structure and having functional posture is an important prerequisite and basis for the realization of a person's daily activities, it is very important to study and evaluate the various difficulties of maintaining the body position of children with CP in their daily lives. According to various authors, positioning issues are tied and have a significant impact on the main components of a person's daily living in work (education), self-care and leisure activities (Reedman et al. 2019).

Body posture, as a chain of numerous conditional and unconditional reflexes, is essentially a dynamic stereotype, a kind of movement habit (Domagalska-Szopa, & Szopa, 2017). At the same time factors from the external environment also play an important role in the development of posture. Maintaining a stable posture, even during daily functional activities, is challenging because stability demands complex interactions between the sensory system, central nervous system, and muscle-skeletal system (Correa et al., 2007).

Considering the role of postural control in the performance of motor skills (Chen & Woollacott, 2007) and in the adaptation of an individual to changing environmental demands, it is important to understand how these factors interact with children with CP in an educational environment. Taking into account the characteristics of physical disorders of children with CP first of all, it is important to provide them with an accessible and supportive social and physical environment, which is an important prerequisite for engaging them in the educational process, in terms of controlling body structure and for overcoming positional problems (Polichino, Clark, & Chandler, 2005).

The use of rehabilitation intervention and, especially, Occupational Therapy (OT) intervention approaches are of particular importance for overcoming the problems of positioning children with CP in the educational environment (Law et al. 1996). In addition, the awareness of each professional working with them and the use of OT approaches to provide targeted support is essential. Moreover, knowing the advantages and disadvantages of methodological approaches and gaps in literature may guide the improvement of the quality of life of children with CP in the educational process. In this regard, this study aimed to explore the influence of supportive and challenging factors of the educational environment on the positioning problems of children with cerebral palsy.

LITERATURE REVIEW

Based on the literature review, deficits in movement and postural control are defining characteristics of cerebral palsy. Since postural control is defined as the ability to align and adjust body

segments against gravity without falling or collapsing, it involves complex neural processes that must be coupled to biomechanical and environmental constraints and can be categorized in terms of static, active, and reactive control (Hemmingsson, Borell & Gustavsson, 2003). Because the ability to control posture is an integral part of all movement, deficits in the posture system contribute to challenges in body structure and function, daily activities, and participation. When a child has CP his/her performance of self-care skills is also limited: bathing, undressing and dressing, brushing teeth etc. When performing the above-mentioned activities, the children's bodies may be stretched or tense or very weak which makes it additional difficult to lift or move them, to ensure proper positioning (Shumway-Cook & Woollacott, 2011).

According to the International Classification of Functioning (ICF), changing and maintaining body position is defined as assuming or changing a position and moving from one place to another, such as turning from one side to another, sitting, standing and changing those positions (WHO, 2007). Accordingly, maintaining the position is one of the important prerequisites for the realization of a person's life activity, and in case of existing problems in body structure and trunk control, that can affect the important and main areas of a person's life activity, such as work, self-care and rest (Jones, & Gray, 2005). Analyzing the problems of maintaining the position and posture of children with CP and performing movements, it is necessary to highlight all the strategic approaches that are developed to carry out effective rehabilitation works to overcome the inability to maintain body position, balance and movement difficulties which are primary for the performance of life activities. Ensuring a functional position is the most important point in rehabilitation work with children with CP since that helps to prevent deformities and contractures, and promotes mobility and functionality in all areas of daily activities.

According to the studies carried out by specialists in the rehabilitation field, to effectively plan and effectively implement intervention works to overcome positioning problems, the Biomechanical and Neurodevelopmental frame of references are usually used, which are a clear guide when working with people with positioning problems (McMillan, 2011; Barthel, 2010). For school-aged children, being involved in the educational process is a significant activity but most children with CP have difficulty maintaining their posture in sitting or standing positions which prevents them from participating in the classroom process.

Some psychosocial characteristics of learners with CP associated with manifestations and effects of their disorders have an impact on environmental barriers, that relate to architectural accessibility, or barriers in the attitudes of the environment (De Villiers, 2015; Cologon, 2020). Taking into account the importance of the participation of each child in the educational process, today, in RA, it is important to provide environmental conditions adapted to the specifics of development for every child, including

those who have special educational needs, as well as ensuring the result defined by the state standard of general education. At present, inclusive education should be the first choice for most pupils with CP and similar types of disabilities.

Besides that due to the characteristics of the physical disorders of children with CP, first of all, it is important to provide them with an accessible and supportive social and physical environment, which is an important prerequisite for involving them in the educational process, by providing appropriate facilities. Physical difficulties are among the most common problems in children with positioning problems and involve multiple physical limitations, especially when moving around in a wheelchair, for children who have problems maintaining and changing their position, it is more important to have an accessible and supportive environment. The concept of "accessible environment" itself is used in a broad sense, including the accessibility of the school, the classroom, as well as the use of partial subjects in the learning process (Barnes, 1991).

Children with CP require intervention from varied disciplines across practice settings to optimize function throughout their lifespan. The management of a child with cerebral palsy, to optimize functional abilities, typically includes the input of many disciplines, including Occupational Therapy (Wilsdon, 1996). OT focuses on the development of skills necessary for the performance of activities of daily living that include play, self-care activities such as dressing, grooming and feeding, and one-motor tasks such as writing and drawing. Another aspect of OT is the adaptation of equipment and seating to allow better upper extremity use and to promote functional independence. By using multiple approaches and developing an appropriate assessment strategy (observation, interview), OT assesses the ability of children with difficulty maintaining and changing the position to be "engaged in any activity" in their social environment, in natural conditions, as well as in institutions where the learner realizes its educational and social activities (Spencer et al. 2006).

Considering that OT interventions in schools have drawn attention recently, and the fact that children with disability have the right to use educational opportunities like ordinary children planning the intervention individually for each learner can be more effective (Baum, & Christiansen, 2005). Ellsworth and Zhang (2007) highlighted the importance of OT intervention in the educational system that ensured the child's full participation in the educational process: following the class, maintaining the school schedule, being able to sit in class, being able to express wishes, communicating with classmates and the teacher.

Using a new paradigm in OT intervention, some therapists and researchers focused on functional success (Mahoney, Robinson, Perales, 2004; Colver, 2006), compensatory movements and environmental adaptations that may be more efficient solutions to facilitate participation of children with CP in daily activities (Howle, 2002).

In this regard, the study aimed to explore the influence of supportive and challenging factors of the educational environment on the positioning problems of children with cerebral palsy.

METHODOLOGY

To carry out the research, the qualitative research method was chosen, and semi-structured interview and observation methods were used for research data collection. The interview was conducted with teachers working at the school and with pedagogical psychological team members (psychologist, speech therapist, special pedagogue, and typhoon educator).

8 children with CP who had difficulty in maintaining body structure and controlling posture were observed in their classrooms. In particular, a descriptive qualitative approach was used for data analysis, which enables to highlighting of the perception and viewpoint of the sample group regarding the given phenomenon (Nayar, & Stanley, 2015). The results of qualitative descriptive research were easily communicated to the researcher and provided an opportunity to understand the interpretation of the situation from the perspective of the respondents.

PARTICIPANTS

The research participants were 8 children studying in primary school who had been diagnosed with CP, teachers, and psychological pedagogical team members (special pedagogue, psychologist, speech therapist) who were working with children with CP at the school. The following criteria were used for the selection of research participants:

- 8 children with CP studying in elementary school have problems maintaining their position and controlling their posture and have limited participation in the educational process.
- 8 specialists of the pedagogical and psychological support team working in schools, who have 4 or more years of work experience in the school.
- Elementary school teachers with 10 or more years of working experience.

DATA COLLECTION

A semi-structured interview and observation were used for data collection, which were quite often used methods in qualitative research. Using a semi-structured interview helped me get the needed information about the topic under study. The structure of semi-structured interviews is considered the best way to gain deeper learning and make discoveries (Whiting, 2008). For the implementation of a semi-structured interview in this study, it was ensured that the interview environment was relaxed and supportive and that there were no people around who could influence the respondent's answers. All interviews were recorded and transcribed. Subsequently, the texts of the semi-structured interviews were

read, and coded and descriptive analysis was carried out.

Semi-structured interview questions were created based on the research question and a total of 8 questions were specified. The questions were aimed at discovering the ways of organizing rehabilitative intervention aimed at overcoming the positioning problems of children with CP studying in elementary schools. In total 8 children with CP who had difficulty maintaining posture and controlling posture were observed. Done observations helped more clearly describe and present existing difficulties and problems of children with CP in their educational environment.

All specialists were provided with an informed consent. The participants agreed to provide information for current research implementation by signing the informed consent which assured that the provided information would be anonymous and the results would be used in a generalized way.

DATA ANALYSIS

The analysis of the research data was carried out based on the descriptive analysis method that involved a systematic observation of the object of the study and cataloguing of the observed information (Trochim & William 2006). The use of this method helped to obtain accurate data and describe the influence of supportive and challenging factors of the educational environment on the positioning problems of children with cerebral palsy. All interviews were recorded and a detailed analysis was performed.

RESULTS/DISCUSSION

The analysis of the research results was aimed at studying the influence of supportive and challenging factors of the school environment on the positioning problems of children with cerebral palsy as well as to investigate the main factors that would enable participation of children with CP in educational activities. The analysis of the information provided by the research participants made it possible to identify and describe the main influence and challenging factors of the school environment, that hinder the process of overcoming the positioning problems of children with CP.

While summarizing the research results, almost all the participants confirmed that **not supportive physical environmental factors** were considered to be the major reason that emerged difficulty in keeping postural control for children with CP, which made an obstacle for learners to participate freely in the educational processes. According to the participants- mostly psychological-pedagogical team members stated that environmental factors had a direct connection and influence on the effectiveness of rehabilitation treatment for overcoming positioning problems at school. A supportive environment both physical and social could facilitate a child's participation in the educational process. Done observations also indicated the importance of environmental factors and proved that having not

comfortable and well-organized classrooms the effectiveness of participation in the educational process for children having postural dysfunction was decreased. Other researchers also stated that that child with CP needed effective support and optimal care along with education that may involve interaction by physical therapist, occupational therapist, speech-language therapist, special education teacher, adaptive sports therapist, nutritionist and other related supporters (Karande & Kulkarni, 2008).

Research participants especially emphasized the great need for an adapted desk and chair, which were not available in almost all schools. If in the schools there were not appropriate supportive furniture and environmental conditions that supported overcoming positioning problems and facilitated the learners' abilities to keep body structure in a proper position, so for these learners to participate freely and independently in the classroom process and other areas of school activities were almost not possible. Law et al. (2007) stated that cultural, economic, institutional, physical, social, and attitudinal factors in the environment could facilitate or hinder the participation of children with disabilities.

Children having postural problems set in uncomfortable school desks, therefore had difficulty controlling their body posture and had difficulty or not being able to maintain or change their body position while performing activities. Thus, the potential therapeutic role of the environment in promoting participation was illustrated by emerging environment-based approaches such as context therapy and the knowledge related to the effect of the environment on participation can contribute to the development of intervention plans and strategies used with children with CP (Darrah et al. 2011).

As a result of the study, the research participants emphasized the need for a **personal assistant** for these children who should always accompany them in the school environment. Accordingly, a personal assistant can always help the child, if necessary, move from the school entrance to the classroom or from the classroom to the bathroom, correct their posture and sitting position can support during activities that require physical movement, help with tasks, move and bring to the blackboard. Supports can be described as resources and strategies aiming to promote the development, education, interests and personal well-being of a person and to enhance individual functioning (American Association on Intellectual & Developmental Disabilities 2010).

According to the participants, the need for a personal assistant was mainly due to the unfavourable school environment, individual intervention and incomplete organization of rehabilitation works at schools and out of it. The need for a personal assistant who should always accompany the learner in the educational environment was significant in cases when the school did not provide with necessary and appropriate environmental conditions to overcome postural dysfunction and facilitate the learner's participation in educational processes (Thompson et al. 2009). Having a personal assistant was very important in the educational environment and allowed children to be involved in education with their peers as much as possible (Teaching Children With Disabilities in Inclusive Settings, UNESCO,

2009).

The other aspect of research data analysis highlighted the importance of the **positive attitude** of teachers and members of the pedagogical psychological team members and the role of support in the process of overcoming postural dysfunction problems for children with CP. According to the participants, a positive attitude can be an incentive for a child to attend school and overcome physical difficulties. Most children with spastic hemiplegia have normal cognitive function and positive attitude considered the most important given their education, employability and social life (Dunst et al. 2002).

The participants noted that children with CP due to a lack of possibilities for equal participation in the classroom process still experienced **isolation and limited opportunities** to be full members of the “*school society*”. In addition, children with CP also had difficulties with fine motor skills, cognition, concentration and maintenance which required additional intervention and support for them to be able to take part in classroom activities.

According to the participants, the continuous pieces of training organized for the members of the pedagogical psychological team members, teachers, and other professionals could be considered as a way to raise awareness of current issues and aimed at developing a mutual understanding of how to support children with postural dysfunction. Since postural problems play a central role in the motor dysfunction of children with CP, the performance of everyday activities was noticeably influenced by such postural deficits. At the same time apart from the severity of disability, it was also important the size of the support base, which influenced the child's possibility to control posture and maintain independence.

In this case, the cooperative work of the team members was important, and occupational therapy consultation had a great role in organizing rehabilitation work with children who had problems in maintaining position and posture in the school environment. In this context, pedagogical psychological teamwork where every specialist used to provide mutually agreed treatment to children with postural dysfunction could bring significant changes and positive results. Data analysis of this research emphasised the need for providing mutually agreed teamwork when specialists could jointly communicate, exchange ideas and work together to come up with solutions to problems. In overcoming postural dysfunction it was very important to work together with different specialists and to use mutually agreed approaches, which contributes to the effectiveness of rehabilitation work in terms of maintaining body structure and postural control (Canadian Association of Occupational Therapists, 2000). Though all team members may not be involved in direct service delivery all members could be involved in planning and monitoring aspects of intervention. The team worked together during the assessment and they also could share information and teach and learn across disciplines (Trabacca, et al. 2016).

According to the experts, it was especially important to use mutually agreed approaches, and

team discussions, which was the direction of the work carried out and ensure the effectiveness of the rehabilitation work. The participants of the research emphasized cooperation with the Occupational Therapists, frequently organizing video-practical works aimed at overcoming the problems of maintaining position and posture. Thus, as a result of the research, it was possible to identify the ways of overcoming the positioning problems of children with CP and to study the influence of the favorable and hindering factors of the educational environment in the presence of positioning problems of children with CP.

CONCLUSION

Current research revealed the importance of supportive environmental factors for overcoming postural dysfunctions and highlighted the role of physical and social environments that could facilitate or hinder learners' participation in the educational processes.

The summary of the results of the conducted research made it possible to distinguish that supportive environmental conditions were important for overcoming the problems of maintaining postural problems and facilitating the participation of children with CP in educational activities. In general, the environment can be a facilitator or a barrier to participation and from this point of view, it was essential to consider those environmental factors that provided access, availability of resources, social support, and equality for children with CP.

The need for a personal assistant for the learners and the positive attitude of teachers and pedagogical psychological team members also were important prerequisites in the process of overcoming postural dysfunction. A good knowledge of CP predicts a positive attitude and the personal assistant should also be reliable, informative, alert, respectful, considerate and friendly. The other most important aspect in this instance was the continuous re-training and awareness of the members of the pedagogical psychological team members working in schools that would be aimed at providing innovative methods and approaches for overcoming postural dysfunction for children with CP in the educational settings.

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