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»Challenges in Education and Evaluation of Knowledge«

22 – 24 August 2023

Organizer

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»Challenges in Education and Evaluation of Knowledge«

The Book of Papers

22 – 24 August 2023

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INDEX

PREFACE

''Teaching that impacts is not head to head, but heart to heart.''
Howard G. Hendricks

Dear EDUchallenge International conference participants and readers,

Hereby we present the Book of Papers of the EDUchallenge International Conference, August 2023, featuring papers by experienced teachers and researchers from around the world. In the papers you will learn how they have faced challenges and improved their teaching skills, and explore their crucial impact on the success of their work..

The leading thought emphasises that teaching should involve the heart as well as the head. Heart opens the door to discussions, to sharing experiences and to perspectives that form the foundation of our shared vision of quality teaching. Truly effective teaching is not only based on the transfer of information from teacher to learner (head to head), but goes much further. Teaching that leaves a lasting impact also involves an emotional and personal aspects.

Heart to heart is not only about transfering knowledge, but also about the teacher engaging his/her own heart, his/her passion, experience and commitment. It is about creating a deeper connection between teacher and student, building relationships, fostering curiosity and personal growth. When teaching touches the heart, it has the power to inspire, transform and leave a lasting impact on a person's life.

At the international conference, we highlighted three central themes that reflect the dynamism of the contemporary educational environment:

1. Developing soft skills: In this category, the authors of the papers addressed the essential question - how can education support the development of soft skills. They explored how educational institutions can create an environment that fosters holistic personal development, from emotional intelligence and communication to teamwork, mindfulness and overcoming stress and anxiety

2. Modern approaches and challenges of teaching: In the second category, the authors highlighted the latest methods and strategies that enable teachers to successfully meet today's teaching challenges and prepare students for the dynamism of the world that awaits them.

3. Education for sustainable development and outdoor learning: In the third category, the authors describe how education can contribute to sustainable development and how we can harness the potential of outdoor learning to re-connect with nature.

When reading the articles in this Book of Papers, we invite you to use the ideas highlighted. We believe that knowledge sharing is fundamental to shaping an educational future that not only transmits information, but also develops soft skills in students.

The Book of Papers brings together **54 scientific and professional papers** and **23 abstracts of lectures** in conference sessions and Roundtables.

Thank you for being part of an educational community committed to continuous improvement and heart-to-heart teaching.

Sincerely,

Programme and Organization Committee
of the International Conference EDUchallenge, August 2023

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I

COMMUNICATION AND PERSONALITY DEVELOPMENT

KOMUNIKACIJA IN RAZVOJ OSEBNOSTI

Role of Assistive Technology in the Work with Children with Disabilities

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Abstract

For a long time, children with disabilities were excluded from the regular educational system. The path to their inclusion in regular groups was not easy and fast. The inclusion of children with disabilities in the regular groups in the educational system requires reorganization of the system itself and provision of adequate conditions so that we can talk about inclusion in the true sense of the word. One of the conditions for ensuring real inclusion of children with disabilities in groups with children with typical development is the availability and use of appropriate assistive technology that will help children with disabilities in performing daily personal, educational, professional, and work tasks. The paper addresses the role of assistive technology in working with children with disabilities. First of all, we looked at the concept of assistive technology and what types of assistive technology exist, then the important people and conditions in the use of assistive technology, we continued with the issue how ready are the teachers to use assistive technology and the benefits and barriers of using assistive technology in the inclusive practice.

Keywords: adventages**,** assistive technology, barriers, children with disabilities, inclusion.

1. Introduction

Introduction of the inclusive model of upbringing and education represents perhaps one of the most serious and comprehensive changes that have happened to the educational systems in the last thirty years because it assumes serious changes in the policies, culture and practice of the traditional/typical model. Creating and implementing an inclusive model of education brings numerous challenges that all participants have to face. Transformation, adaptation to the new situation is needed for the institutional infrastructure, personnel structure, educational curricula, the attitudes of all involved, as well as the initial education programs of teachers/educators/caregivers. (Petrovska & Runceva, 2019). The use of appropriate assistive technology in working with children with disabilities is inevitable. The inclusion of children with disabilities demanded a change in the overall organization of the educational system. Numerous questions were opened, including the question of whether teachers know how to use appropriate assistive technology when they work with a child with disabilities, and before we ask this question, the first question would be: whether the educational institutions have appropriate assistive technology that meets and satisfy the needs of the children with disabilities.

There are numerous classifications of children with disabilities. According to Hrnjica (1991), the classification is: Children with sensory impairments; Children with physical

disabilities; Children with insufficiently developed cognitive abilities; Children with speech disorders; Children with motor disorders; Children with behavior disorders. (Petrovska & Runceva, 2019). In the group of the children with special educational needs belong the gifted children.

2. The term assistive technology

Children with disabilities have the right and opportunity to be included in regular groups in kindergartens and in regular classes in primary and secondary schools through the concept of inclusive education. „ *Mild disabilities are classified as learning disabilities, emotional/behavioral disorders and mental retardation* " (Edyburn, 2000, pp. 2).

When individual education plans (IEPs) are planning for children with disabilities, it is necessary to take into account the assistive technology that will be used. When the word technology is mentioned in the context of assistive technology used in the work with children with disabilities, it does not mean only computers, phones and tablets. There is a wide range of devices and services that assistive technology contains and offers, with the help of which the performance of people with disabilities is improved, enabling people with difficulties to complete daily personal, school, work tasks as efficiently and effectively as possible. (Edyburn, 2000).

The term assistive technology has been defined in several manuals, textbooks, papers by numerous eminent authors and researchers. Some of the definitions of the term assistive technology are:

Assistive technology means *any product, piece of equipment or system, whether used in its original form, modified or adapted, that is used to increase, maintain or improve the functional abilities of persons with disabilities* (Encyclopedia of disability, 2006, pp. 129).

Assistive technology is any device that helps a person with a disability to perform everyday tasks. In fact, it is any device that is used to maintain or improve the functioning of a person with special needs (Adebisi et al., 2015, pp. 15).

Assistive technology is an "umbrella" term that refers to any product or service-based technology that enables people with limited abilities of different ages, to be active in their daily life, education, workplace or leisure time (Jacova & Stojkovska Aleksova, 2013, pp. 31).

Assistive technology includes instruments, tools and devices that children with developmental disabilities use to perform a task that they would be unable to perform otherwise. This also includes the tools with which they can perform those tasks faster, easier and better (Kunić, 2020).

Assistive technology is a common name for assistive, adaptive and rehabilitative devices for people with developmental disabilities and disabled people, which also includes the process of choosing, finding and using these device (Bodanovic & Razic-Ilic, 2016, pp. 5).

In our geographical areas, several authors write about the division and types of assistive technology (Jacova & Stojkovska Aleksova, 2013; Lazor, 2017; Lazor et al., 2012; Stanković, 2014/2015; Stojkovska, 2013; Vinčić, 2016; UNICEF, 2022). In the wider world framework, this topic has been researched, especially emphasized in the last thirty years (Adebisi, et al., 2015; Brassai et al., 2011; Cowan, et al., 2012; Edyburn, 2000).

Role of Assistive Technology in the Work with Children with Disabilities

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Namely, the classification of assistive products was established by International Standard ISO 9999 (International Organization for Standardization). The classification of assistive products is performed according to the function (Helal et al., 2008).

The classification of the assistive technology can be done according to the **dominant difficulties of the persons** (Lazor, 2017; UNICEF 2022, pp. 5):

- Assistive technology for people with disabilities in motor development;
- Assistive technology for visually impaired people;
- Assistive technology for the hearing impaired people;
- Assistive technology for people with learning difficulties;
- Recreation and leisure time resources.

On the other hand, the classification of assistive technology can be **according to the task in** which the assistive technology helps so that the task can be performed (Lazor et al., 2012, pp. 16): Stability, sitting and mobility; Work place; Communication; Access to computers; Motor aspects of writing; Writing text; Learning difficulties – reading, mathematics; Visual impairment, hearing impairment; Daily activities and device management; Rest and recreation.

Assistive technology can be divided into the following categories, i.e. product groups:

- *Alternative input devices* (Exp. alternative and adapted keyboards, extended keyboards, touch screens, speech recognition systems,).
- *Alternative output devices* (exp. Computer-based output devices that generally enable the blind or visually impaired to use and interact with the computer.
- *Accessible software*. (Exp. accessible websites, accessible web browsers)
- *Universal design* (Design methods, techniques, and guidelines that make computers and software applications fully accessible to people with difficulties.) (Jacova & Stojkovska Aleksova, 2013, pp. 34):

Below we give a list of the types of assistive technologies that can be used. The assistive technology which helps and enables a given task (of a personal, work, school nature) to be performed more efficiently and independently. Of course we cannot list all types of assistive technology, here are just a few.

Table 1

Assistive technology that helps in performing the given task

A task to be performed	Assistive technology that helps to perform the task more efficiently and independently
To facilitate movement	A walker, Fox Rebotec, Wheelchair, Electric Standing Wheelchair, Delta Platformlift
Seating and positioning aids	Standard chair with appropriate height and depth; Non-slip surface on a standard chair (to prevent slipping/falling); Custom seat,
For writing	Plastic guides; Writing boundaries, Pencil holders; rulers with a handle
For reading	Standard texts; Changes in font size, spacing and text color, background color; Using an image/symbol with the text; Voice electronic devices or software that "pronounce" complicated words; Single word scanners; Electronic books
Hearing aids	Pen and paper, Portable word processor, Signaling devices (eg visual bell or vibrating pager), Systems with additional non-verbal information, Subtitling in real life time, Light signal on the computer as a warning signal, Telephone

	amplifier, Personal amplifier system / hearing aid, Inductive loop as an amplifier and sound filter in a defined space, FM amplification system, Infrared signal system, Mobile phone in the function of assistive technology Laptop KSAFA – d system,
Visual impairment	Glasses, magnifying glass, dictaphone, books printed in large letters with adequate contrast, software for zooming the screen, increasing the contrast on the screen, screen reader, text reader, Braille printed materials, enlarged and/or relief letters on the keyboard, braille keyboard, keyboard with larger keys, braille typewriter Electric magnifying glass Mezzo VARIO 20, Signature template, Scan Marker
Communication	Activity calendars or weekly planners, GoTalk Pocket (communicator with 6 pictures), Go Talk communicator iPhone / iPad in communicator function with Go Talk software; Touch monitor; Keyboard filters; Programs for speech recognition; screen viewer utilities, speech synthesizers
Learing difficulties	Clevy Maestro package for dyslexia; Playful puzzles, Graphic organizers for reading, Application Behavior
Means for recreation and free time	Sound ball, Sound Frisbee, Social games (chess; don't get angry man; dominoes) Therapeutic swing

Source: Kenić, 2020; Lazor et al., 2012; Stanković, 2014; UNICEF, 2022

Assistive technology is one of the conditions (legally prescribed – Primary education law, 2020, pp. 7) which needs to be provided (along with the educational assistant, the personal assistant, the inclusive team, professional support from the learning support center) in order to give adequate learning support for children with disabilities. The inclusive team is very important when it comes to assistive technology in educational institutions. When we say inclusive team especialy school inclusive team, in cooperation with the school with a resource center, takes care of providing the necessary assistive technology for the student. The school inclusive team investigates and uses opportunities to improve conditions for inclusive education through sponsorships and donations (removing architectural barriers, using assistive technology, providing teaching aids and aids for working with students with disabilities) (Rozalija et al., 2020).

3. Factors that determine the use of assistive technology

The issue is really complex when it comes to the use of assistive technology in the inclusive educational environment. Numerous factors determine the correct use of assistive technology. Some of the key factors are: full-time employeed certified specialists for assistive technology in educational institutions; access of children with disabilities to assistive devices and services; what is the composition of assistive technology teams in schools; the quality of services provided by assistive technology; the time needed to procure the assistive technology, the time needed to train people. These are questions that have been asked more than twenty years ago (Edyburn, 2000), and even today there are problems and challenges like: lack of a full-time special educator and rehabilitator in the school, one mobile special educator and rehabilitator hired in a school with 1030 students; lack of assistive technology, lack of resources for working with children with disabilities (these are some of the difficulties that some primary school in Macedonia have). They also need a speech therapist to be employed in the school, teachers need training to work with children with disabilities (these are some of the problems faced in some primary schools, R.N. Macedonia, when it comes to inclusiveness (Iliev, et al., 2022, pp. 105, 145). In the study on the availability of professional support and knowledge in the field of

assistive technology in the educational system in Serbia (in 2016) it is pointed out that the number of experts who possess adequate knowledge of assistive technology is small (Bogdanović & Razić-Ilić, 2016). In the research conducted in 2021 in Belgrade and Novi Sad, it was claimed that teaching staff consider themselves moderately competent in the use of assistive technology, that they have different levels of knowledge and that those working in primary schools have a lack of training in this area. It is considered that the training of teaching staff is the most important factor in the process of technology implementation (Mundy et al., 2012) and that it contributes to their confidence in applying assistive technology with students (Arsenić et al., 2022). Educators (included in the research in Belgrade 2021) point out that the most common barrier that prevents the application of assistive technology in kindergartens is limited resources, but also the lack of education of educators for the use of assistive technology, so it is difficult for them to use and apply it (Vuković & Roknić, 2021).

Another important factor that determine whether an individual's functional abilities will improve or not (in the work with children with disabilities) is the assessment of the need for assistive technology. In the assessment process for assistive technology, factors that play an important role are: the student, the task, and the device. When it comes to the student, it is necessary to perceive the student's abilities and difficulties, to see the student's strengths and weaknesses in several areas: reading, writing, speaking, listening, mathematics, memory, organization, motor skills, which will identify the difficulties that need to be overcome with the use of appropriate assistive technology. An appropriate assistive tool will be selected if the task to be performed is determined. The choice of assistive technology should be in accordance with the needs of each child (Stojkovska, 2013). The steps that the expert team should follow during the assessment to select the appropriate assistive device are the collection of basic information about the person, observation of the person, determination of the student's abilities and needs for assistive technologies, research for the ideal system, proposal of the access system, personalization and augmentation of the access system, setting goals for instruction and training, system implementation, program monitoring and continuation assurance (Vinčić, 2016).

The team that makes the assessment for assistive technology does not have a final list of participants. However, there are 5 persons who must be part of the assistive technology assessment team, namely: a family member/parent who knows the student well, including the student himself; special educator and rehabilitator; speech therapist; physiotherapist and the person in charge of procuring assistive technology and conducting staff training (Stojkovska, 2013). Members of the team can be teachers and other university staff, social workers, friends, and extended family members.

It is necessary that the staff engaged in the schools have developed technological competences for the efficient application of the assistive technology, so that the student who uses the assistive technology can achieve success (According Michaels & McDermott, 2003 as cited in Arsenić et al., 2022). Therefore, teaching staff competence in using assistive technology refers to what teaching staff should know and be able to do with any type of assistive technology in an educational environment at any time. (Arsenić et al., 2022)

4. Readiness of teachers to use assistive technology

Research has shown that in an inclusive approach, it is important that children with disabilities meet their rights and learn according to their abilities, opportunities and interests, in order to bridge the differences between children with disabilities and children with typical development. However, children with disabilities in inclusive classes often experience educational failure, for example children with sensory impairments or with below average intellectual functioning, which has been identified as a major problem because they cannot learn in the same ways as typically developing students (Bakinde Surajudeen et al., 2023).

Many countries around the world are focusing on approaches using assistive technologies in learning and teaching to improve the quality of education by emphasizing teacher competencies such as critical thinking, decision making, problem solving and dynamic situations, teamwork and effective communication. The use of assistive technologies can be called the implementation of a method or process of using assistive technologies to teach children with disabilities in order to achieve their optimal educational potential. Some researchers have shown that the use of assistive technology in education is considered a support that would help children with disabilities realize their potential and bypass areas of difficulty in teaching through new technological tools, which aims to make a step forward in the application of an outdated educational system (Bakinde Surajudeen et al., 2023).

Because assistive technology is designed for individual use, it can be carefully designed, fitted, and tailored to the specific strengths and functional limitations of an individual child and, while it cannot eliminate learning disabilities, it can help children with disabilities reach their highest educational potential because assistive technology enables learning while capitalizing on their strengths and reducing areas of difficulty. For example, a student who has reading problems but has good listening skills can benefit from listening to audiobooks and recorded instructions. Teachers, as well as children with disabilities and their parents recognize the possibilities of various assistive technology tools in learning and teaching, with new opportunities in discovering the potential for easier learning (Van Lieshout et al., 2022). However, regardless of the fact that assistive technology supports children's right to adequate education, access and use of assistive technology in education should be considered a right for children who would benefit from it.

The Global Report on Assistive Technology (UNICEF, 2022; WHO, 2015) emphasizes that "access to assistive technology for children with disabilities is often the first step for childhood development". The report focuses on the basics of assistive technology in terms of identifying and selecting appropriate tools for students in collaboration with other stakeholders, as well as developing skills for its capabilities, access and use. In the selection and implementation of assistive technology, the cooperation and engagement of teams that include different actors and stakeholders in the entire process of determination is important; teachers, other school staff, families and other service providers (UNICEF, 2022).

In order to plan the means of assistive technology that are needed for children, teachers need to recognize and assess which assistive technology is the most effective for an individual child with disabilities, for which it is necessary that the teachers are adequately competent for this, that is, that they have the ability to apply it , inclination, as well as that they were professionally trained in that area. The use of assistive technology is considered beneficial for children with disabilities based on the availability, coordinated assessment of assistive technologies, and the implementation process. At the same time, it is necessary for teachers to have guaranteed monitoring and support in the use of technological solutions

Accirding to UNICEF (2022) to implement learning and teaching activities based on the principles of educational inclusion, teachers must be empowered in the selection and implementation of assistive technologies and must possess the following competencies:

- Have knowledge of basic tools that can be used in the classroom
- Consider the use of assistive technology as a tool to remove obstacles in various aspects of the learning and teaching process
- Recognize basic common solutions through assistive technology for special educational needs
- Research and identify and select assistive technology and accessibility resources for the special educational needs of individual students
- Set up, configure and implement common/basic assistive technologies and specific equipment used by specific students
- Monitor and confirm the appropriateness of assistive technology used by students
- Create accessible materials to support children's participation in learning
- Know and use reliable sources of information and resources about assistive technology solutions at the local/national and international level.

Regarding the extensive specific competencies for assistive technology that teachers should have, UNICEF document The Global Report on Assistive Technology (2022) also mentions the great role of other participants, such as the family/caregivers, all teachers who work with the child, as well as the professional team. The family together with the child are a source of information about the student's preferences, lifestyle, profile outside of school, which are necessary in making decisions about designing technologically supported activities in all environments. Since the family is often the key to the exchange of information between school and work at home, as well as in extracurricular activities, their consistency in the proper use of technology is important. In this regard, partnerships with parents and the home environment are critical to the effectiveness of inclusive technology-enhanced learning environments, both in and out of the classroom. All those involved in the learning and teaching of the child should undergo professional training related to certain technologies and different environments in which they will be implemented. When it comes to assistive technology, Ahmed (2018) states that there is a correlation between what assistive technology is believed to be and what is done in practice. According to Galvez-Martin (2003), teachers' self-reflection includes a thoughtful look at teaching and the teaching process, in the sense of evaluating and monitoring what has been done, what should be changed and more to be done, and allows them to evaluate themselves and understand how they cope with new challenges. Teamwork is considered more effective for teachers' self-reflection since communication frameworks allow them to interact, exchange ideas and learn from each other (Devi et al., 2021), for example on how to use assistive technology and other resources, as well as for evaluation during and after implementation. Although for the family and parents/guardians, professional development is about the specifics of the child's educational needs and technology for use at home and outside of school, the above frameworks of competences can also be useful to them. Therefore, training should focus on developing practical skills in setting up and using technology, as well as how to create opportunities and motivate children to use technology at home in learning and other activities.

Alkahtani (2013), states that teachers have a lack of adequate knowledge and skills to use assistive technology. Johnson et al. (2016), emphasize that teachers' attitudes are key elements for the effectiveness and use of assistive technology in classes and research by Cagiltay et al. (2019) showed that teachers believe that the introduction of assistive technology in classes

improves educational results and therefore promotes teacher job satisfaction. Some teaching methods and techniques in the learning and teaching process emphasize the importance of using assistive technology in order to improve learning achievement (Baglama et al., 2022).

5. Advantages and barriers of using assistive technology in inclusive practice

In today's diverse and inclusive educational environment, assistive technology has emerged as a powerful tool to foster inclusive practice. The results of using assistive and teaching technology to support children with disabilities have been increasingly described over the past three decades in many fields, and technology-supported assessments and augmentative and alternative communication devices have been proven to be effective for both children with disabilities and typically developing students (Bryant & Seok, 2017; Suwahyo et al., 2021). New perspectives and examples of student support in the classroom help to understand the benefits of assistive technology in the classroom, which helps teachers create an inclusive environment for all students according to their abilities and capabilities. Assistive technology has been shown to have mixed results for children with disabilities. However, according to some studies, assistive technology improves the learning environment resulting in significant improvements in the general functioning of children with disabilities and overall has been shown to benefit children with disabilities in most areas of inclusive education, such as reading (Anderson et al., 2009). Also, communication systems such as graphic displays, symbols or communication devices with synthetic speech are effective tools for improving the motivation of students in learning, as well as for the socialization of children with functional disabilities (Gilroy et al., 2018). In addition, when students have a form of teaching at home or in the hospital due to a medical condition, or if they live in rural or distant areas, the availability of assistive and information and communication technology (ICT) can enable them to participate in distance learning and they can be in contact with their peers (Maor & Mitchem, 2015).

By breaking down barriers and providing tailored support to students who need it, assistive technology ensures that children with different abilities and capabilities can actively participate and progress alongside their peers and further increases individual student well-being, self-esteem, self-image and motivation to pursue important life goals (Botelho, 2020; WHO, 2015). Zwarych (2022) believes that there are many implications related to assistive technology in education. Lists some of the benefits of assistive technology in instructional planning that include accessibility, personalized learning, increased communication and expression, skill development, integration and collaboration, empowerment and independence. For example, in addition to speech-to-text or text-to-speech devices, software is used for art-expressive methods in the classroom or for writing activities that contribute to improving academic performance and language development (Nelson et al., 2013). According to Murray & Rabiner (2014), assistive technology can be adapted to the level of the student's needs and provide immediate feedback to improve learning. In addition, there is support for children with disabilities in performing tasks or functions that they would otherwise not be able to do (Sullivan & Lewis, 2000). These new perspectives and examples help to understand the benefits of assistive technology in education to support children with disabilities, highlighting their positive effects, such as better academic performance, increased independence, improved self-confidence and a more inclusive learning environment. Assistive technology empowers children with disabilities by enabling them to receive individualized support tailored to their different learning styles, paces and abilities, thereby fostering a more inclusive and stimulating learning environment (Hasselbring & Glaser, 2000). Furthermore, computer technology significantly improves accessibility by offering a variety of assistive devices, including specialized keyboards, touch screens, and eye-tracking technology, allowing students with motor disabilities to access and

actively participate in educational content (Hasselbring & Glaser, according Zwarych, 2022). Despite this, little attention has been paid to how and to what extent children with disabilities use assistive technology in their daily lives, which is not surprising, considering that there is insufficient research on this, which could be a challenge in terms of ensuring equal opportunities for access to digital technologies and their applications (Fernández-Batanero et al., 2022).

According to World Health Organization (2022), more than one billion people with disabilities need assistive technology, but only 10% have access to and use assistive technology (Global Cooperation on Assistive Technology (GATE), WHO, 2016). In order to solve the problems between needs and possibilities as best as possible, in 2014 WHO launched Global Cooperation on Assistive Technology (GATE) and identified 50 priority assistive technology devices. However, even for children with disabilities, the benefits of using assistive technology in the classroom are not yet perfect. The problem is how to overcome obstacles in the application of assistive technology for children with specific learning difficulties in inclusive education so that its benefits can be realized. This represents a challenge for teachers due to the fear of using unknown technology, lack of training and lack of support in direct work (Alper & Raharinirina, 2006), since when teachers perceive that the barriers associated with the use of assistive technology interfere with the way students learn and teach, it is possible that they will abandon the use of assistive technology in practice. This is a fundamental factor in the importance of dealing with such obstacles. Teachers' opinions are often divided, and some perceive assistive technology as a limited substitute for the development of cognitive abilities because they believe that assistive technology cannot adequately perform the task for students, while other teachers think that assistive technology helps students learn (Alharbi, 2016). In addition, despite all the difficulties that teachers may face when implementing assistive technology, the consequences are more severe in terms of limiting access to such a method of education for children with disabilities (Alharbi, 2016). Mason (2014), according to Alhabri (2016), lists barriers in the use of assistive technology that are biggest in implementation and accessibility, including issues teachers face such as troubleshooting support in case of malfunctioning technology, adequate wireless support for mobile technology, adequate time for planning and teacher collaboration, systems for verification of student application and an integrated approach through the curriculum. According to Schoeppu (2005), in addition to the lack of teacher training and the lack of resources in teaching, the lack of adequate application of assistive technology is the involvement of the family and the lack of cooperation with the family. Since the family's decision to use assistive technology can be influenced by language, cultural values and background, school and family cooperation is important to maximize the effective implementation of assistive technology in the school, family home and community. However, Alper & Raharinirina (2006) believe that this partnership is rarely established due to the obstacles that families face in connection with the use and selection of assistive technology. Availability and social stigma, traditional educational approaches, and insecurity and incompetence of teachers, which makes them unprepared to deal with these challenges, are mentioned as external factors that can prevent the implementation of assistive technology. Coleman & Cramer (2015) list the obstacles that children with developmental disabilities often face in the activities of art fields, highlighting the limitations of practical art activities in inclusive practice. The authors believe that for artistic expression it is necessary to develop creativity, communication and general well-being in children with developmental disabilities.

Assistive technology can offer children with disabilities important tools to develop greater independence, social inclusion and engagement in society. However, often due to obstacles in obtaining and using the means of assistive technology, it is not always available to everyone, regardless of what is of vital importance for children with disabilities, who otherwise would not

be able to acquire an adequate level of education without the help of modern technology. (Bryant & Seok, 2017). Taherian and Davies (2018) cite barriers such as ease of use, reliability and comfort, with a lack of competence development in this area and guidance offered to the final user, family and parents/guardians on the safe and appropriate use of assistive technology (for example, a lack of written information or a lack of time spent familiarizing the user with the device). Senjam et al. (2021) in their study, they state that the most common obstacle in schools is the lack of availability of tactile and sound assistive technology to support children with visual impairments. The next most common barrier cited by them is the economic limitations of access to assistive technology, which cannot be afforded by all students equally due to often high prices, which leads to inaccessibility among students. However, the same authors also believe that as the barriers of availability and costs are resolved, the importance of quality teacher training will become more relevant. In relation to the aforementioned potential obstacles, Byrd & Leon (2017) describe three main aspects that prevent the inclusion and access of children with disabilities in the use of specialized assistive technologies:1) insufficient availability and accessibility for children with disabilities, 2) high costs and uncertain financing, 3) lack of professional training in the field for the use of virtual devices and platforms. But assistive technology in educational settings can be critical to achieving learning outcomes for children with disabilities. In fact, it is considered an effective compensatory support because devices can be used to improve the ability of a student with learning disabilities to perform independently or perform a task at the intended level (Alper & Raharinirina, 2006). In this way, by applying adequate assistive technology in classes, it can be improved that children with disabilities are active in teaching activities alongside children with typical development. With various specialized assistive technology devices and tools, in an inclusive classroom environment, support for children with disabilities is provided through a differentiated and individualized approach. For example, sitting in the front of the classroom can help childrenwith sensory impairments or cognitive disabilities better focus on what the teacher is saying or writing on the board. Classrooms can have a level of sensory stimulation by reducing distracting noise through the use of earplugs or noise-canceling headphones, as well as a variety of seating options such as floor pillows, specialized chairs, and ball seats that accommodate different student body sizes and shapes and can improve tracking for children with disabilities that occur in the classroom and make learning environments more inclusive.

6. Conclusion

Assistive technology can offer children with disabilities important tools to develop greater independence, social inclusion and engagement in society. With various specialized assistive technology devices and tools, in an inclusive classroom environment, support for children with disabilities is provided through a differentiated and individualized approach. By applying adequate assistive technology in classes, it can be improved that children with disabilities are active in teaching activities alongside children with typical development. But to speak for a proper use of assistive technology in inclusive groups a large number of conditions needs to be fulfilled. Each child is special and different and it should be used the technology, device that suits him best. In order to succeed in that, all the necessary financial, personal resources must be provided.

7. Literature

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