

PEDAGOGY AND EDUCATION

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DIGITAL TECHNOLOGIES FOR INCLUSIVE EDUCATION

***Abstract.** The possibilities of using ICT and SMART technologies for training children with special educational needs are analyzed. The introduction of such technologies allows children with special educational needs to be virtually present in the class, to participate in discussions, and most importantly, to adapt socially, feeling confident in their own abilities.*

***Keywords:** information and communication technologies, SMART technologies, SMART Boards, SMART Notes, SMART approaches, children with special educational needs, inclusive education.*

The use of information and communication technologies can be an important factor in improving the education of children with special educational needs, because they open wide opportunities to improve the quality of education, its accessibility. According to the UNESCO document, the current level of ICT development significantly expands opportunities for teachers and students by facilitating access to educational and professional data and information. It improves the functionality and efficiency of learning tools management, promotes the integration of national information educational systems into the world network, and contributes toward access to international information resources in the field of education, science and culture [1].

With the growing attention to inclusive education, the relevance of information technology introduction in education as an aid for the training of children with special educational needs is growing.

Our country is currently pursuing a consistent policy of transition to an inclusive learning model by creating conditions for the integration of people with special educational needs into the educational space.

Inclusive education is a system of educational services based on the principle of ensuring the basic children's right to education and the right to receive it at the place of residence. It involves the training of a child with special educational needs in a secondary school. Inclusion involves adapting schools and their general educational philosophy and policies to the needs of all students, both gifted children and those with special needs. Inclusion needs change at all levels of education. Society should take into account and adapt to the individual needs of people, not vice versa [2, p. 123].

To some extent, the low quality of inclusive education is due to the low level of teachers' training, insufficient level of knowledge, skills and abilities to use interactive and communicative technologies in inclusive education.

There are three main ways to use ICT in inclusive education:

– for compensatory purposes (use of ICT as technical assistance, support, partial compensation or replacement of missing natural functions, which allows students with special needs to be fully involved in the processes of communication and interaction);

– for communication purposes (aids and software, alternative forms of communication that facilitate or enable communication in a more convenient way, specific to each type of functional limitation);

– for didactic purposes (promote differentiation, satisfaction of individual needs, personal development of children with special needs, disclosure of their abilities, full inclusion, inclusion in the educational and social environment) [4, p. 9].

The rapid development of the Internet, information and communication technologies provides opportunities for the education of all people, including children with special needs.

The development of the Internet technologies and e-learning has given impetus to the emergence of SMART education. This is a new philosophy of learning, the so-called smart learning. It brings together educational institutions, educators and

teachers of these institutions to carry out joint educational activities on the Internet.

SMART learning is flexible learning in an interactive educational environment using freely available content. Thus, information becomes widely available to all segments of the population. The learning process is moving to an electronic environment, which, in turn, provides full access to resources for everyone, which leads to an increase in the number of people willing to learn from anywhere and anytime.

SMART technologies for children who need inclusive education are interactive software educational complexes that stimulate students' cognitive, creative and active activities in the classroom.

The advantages of SMART technologies in an inclusive environment are that they help to develop and reveal the creative abilities of children with special needs, communication skills, professional knowledge, literacy in the field of interactive communication technologies, to improve the skills of effective teamwork and mutual understanding, leadership, to form critical thinking [5, p. 9].

In today's world, the use of SMART technologies is not new. They are widely implemented and used in pedagogical practice. The modern teacher faces a number of urgent tasks that need to be solved to make the learning process interesting, creative and to meet all students' needs. Therefore, there are significant changes in the process of teaching subjects in general secondary education with the use of modern information technology. Teachers should take into account the State standard of general secondary education. According to this standard children with special needs receive the appropriate level of education among healthy peers.

Children from the first years of life are familiar with the Internet, have access to many electronic materials, and also have basic skills in working with information resources. But children with special needs can rarely immediately navigate the information system, sources of its receipt, use of methods and means of its processing, and can't always use some tools due to physical disabilities. The task of a secondary school teacher is to organize the work of children with special needs to achieve this goal. SMART technology tools allow planning the work of children with special needs, developing a clear structure of classes with specific tasks,

requirements for their implementation and evaluation criteria.

Modern personal computers, SMART boards, the Internet are now necessary tools in the educational process. In addition, the use of SMART technologies for children with special educational needs in the learning process provides an opportunity to more widely and fully reveal the creative potential of each child. For example, the use of an interactive board and projector in the educational process allows the use of different colours as a series of harmoniously interconnected shades of one colour. The use of touch panels and tablets helps to stimulate a tactile sensation that is the feeling of pressure and touch, interaction with the environment of a stimulus that comes into contact with the body surface. Thus, it is possible to follow the relevance of SMART technologies usage for children with special educational needs in the learning process. The students with special needs perceive information faster, are involved in active group discussions, work together, pass individual tests. Therefore, effective feedback is established in the system “children-teacher” [4, p. 10].

There is already a regular training session with the use of multimedia presentations, which are made with the help of software packages Microsoft Power Point or Macromedia Flash (visual perception). But, along with our usual presentation technologies, new interactive technologies are penetrating the field of education. They allow us to show presentations in the form of slide shows, which are accompanied by sound files (auditory perception). There is also a new way of presenting material with interactive equipment: SMART Boards, interactive displays Sympodium (tactile sensations) are presentations created by the speaker during his speech, presentations created here and now.

ICT is most often used to work with special children who have hearing problems. For example, O. Savchenko, analyzing the integration of children of this nosology in society based on the development of inclusive education in Ukraine, offers some technical means of organizing the learning and corrective environment. Among the equipment that should be aimed at achieving positive results in inclusive education, she singles out individual hearing aids or implants, additional sound amplification in the classroom, auditory simulators [6, p.7]. Practically, the use of

interactive and communicative technologies in working with children with hearing impairments in inclusive education shows that modern electronic tools and software are an important factor in enriching the system of methods and techniques for didactic and corrective work. Considering the introduction of ICT and SMART technologies in the system of inclusive education of children with hearing impairments, the teacher takes into account children's visual abilities, provides reproduction of knowledge by students, develops speech skills, provides systematic interactive work with individual sounds, syllables, phrases, sentences and texts, creates additional conditions for the development of logical thinking, the ability to draw conclusions and generalizations. These are factors for the formation of student competencies and ensuring the socialization of a child with hearing impairment, who undergoes inclusive education.

The use of modern programs, complexes, simulators, devices and computer games opens additional opportunities for pedagogues who provide inclusive education for children with hearing impairments, for psychologists, speech therapists, deaf and dumb, special educators and other experts in special education. They can identify individual characteristics of each student, provide specific recommendations that should be included in the individual curricula of children with special educational needs, provide child development and control over the change dynamics.

In such conditions, the functions of a teacher change significantly: from the source (sometimes the only) knowledge to the navigator of effective work with knowledge. In this regard, in the world educational community a new term has been used, which emphasizes the great importance of this function of teachers – a facilitator, the one who promotes, facilitates, helps to learn.

For junior students, one can use SMART Table – the training center for group work, which allows you to combine learning with play, stimulating active teamwork and learning. By performing different tasks and at the same time cooperating with each other in achieving the goal, students develop collective problem-solving skills. SMART Table allows small groups to work together face-to-face and perform a common task, solve problems on a common interactive surface.

The set of SMART Table tools allows you to change ready-made classes to

your own requirements. It is also possible to create your own lessons or download interactive lessons on the SMART Exchange website.

All elements of the SMART interactive complex run on a single SMART Notebook software. SMART digital resources are designed in accordance with the requirements of inclusive education. These are:

- bright, colourful visual images;
- all sensory channels of information perception;
- visual and practical methods of work combination;
- tasks for individual, pair and group work;
- skills of communicative interaction, creativity, spatial and logical abilities.

This is clearly evident through the pedagogical experiment supported by the Ministry of Education and Science of Ukraine, the Institute for Digitalization of Education of the National Academy of Educational Sciences of Ukraine “Smart Kids”, which allows students to gain strong and deep knowledge of school subjects and children with special educational needs to work independently and to better remember new information.

But the above-mentioned opportunities of using SMART technologies for children with special educational needs during the training process should not create the illusion of ease in solving problems. The application of these technologies requires teachers to prepare a system of tasks that will be aimed at forming a high level of mental operations’ development (analysis, synthesis, generalization) and the formation and development of communicative competence. The work of a teacher is not only simplified, but at the same time becomes more complicated and requires higher qualifications. Increasing the degree of teachers’ readiness to meaningful understanding of traditional approaches to learning, their effective analysis, taking into account the active introduction of SMART technologies for children with special needs in the educational process and practical implementation of these technologies will increase efficiency and effectiveness.

Therefore, the use of modern SMART technologies for children with special needs in the educational environment is not only a means of enhancing the cognitive and creative activities of such students, but also objectively due to the rapid

development of science and technology. This requires detailed study, methods and forms' development, techniques of using these technologies and their implementation. The main directions in the development of inclusive education are the implementation of prospects for social rehabilitation of children with special needs, creating conditions for their integrated education, further independent living. If we pay enough attention to the technologies of the future and proper material support for SMART technology, then in the future it will allow Ukraine to reach a new level of development. The use of SMART technologies in the classrooms is one of the requirements for the modern educational environment in the information society and the introduction of inclusive education, because children with special educational needs are forced to use assistive devices in the learning process. Thus, ICT allows students with special needs to fully participate in the educational process, to develop adopted individual effective educational strategies. The introduction of ICT and SMART technologies in inclusive education allows people with special needs to integrate into the educational space.

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