

Perspectives of Special Education Teachers of Using Technology to Support Learning for Children with Intellectual disabilities

¹RAD ALTHBITI, ²FARIS ALGAHTANI

¹Ministry of Education

²Department of Special Education, Faculty of Education, University of Jeddah, Saudi Arabia.

E-mail: fhalqahtani@uj.edu.sa

Abstract: The aim of the study was to identify the perspectives of special education teachers in using technology to support learning for children with intellectual disabilities, and to identify the reality of the use of technological education teachers to support learning for children with intellectual disabilities. As well as the factors that can be used to improve the use of technology for children with intellectual disabilities. The researcher used the descriptive approach to measure the views of special education teachers in using technology to support learning for children with intellectual disabilities. The study sample consisted of (38) special education teachers who answered the study tool. The study tools consisted of a two-part questionnaire aimed at identifying the perspectives of special education teachers in using technology to support learning for children with intellectual disabilities. The society of the study consisted of all special education teachers working in special education centers both private and governmental in the city of Taif. The study reached many results, the most important of which is to identify the needs of the child with mental disability and to know the ways to satisfy them. The study also stressed that the challenges faced by special education teachers are decreasing as the teacher of special education undergoes many training courses. The researcher recommended the need to hold workshops and training courses in special education centers and learn about the latest developments in the use of technology to support learning for children with mental disabilities.

Keywords: Special education teachers - Technology - Intellectual Disabilities Children

1. INTRODUCTION

As we enter the third millennium, it is no longer hidden that the world is witnessing radical changes, in which the pace of change is raging, and peoples and their cultural, social and moral heritage are being trampled on in the era of globalization and the ICT revolution, which affects them if they are not able to act or initiate them to cope with increasingly complex problems and developments that are difficult to understand. Our nation has no choice but to rely on the brains of its people who have the elements of talent and creativity - after being cared for in every possible way - so that they can be an inexhaustible strategic asset and have a role in addressing the existing and expected problems in order to develop successful solutions or reduce their damage to a minimum.

Disabled persons with special needs represent 10% of the world's population, and the percentage in the Arab world rises to 12% according to statistics issued by the United Nations and the Arab League Educational, Cultural and Scientific Organization (Zarzis and Ismail, 1991, 18). The twentieth century witnessed a major development in the interest of persons with disabilities at the global level, as reflected in the many charters issued by the United Nations, notably the 1981 Declaration on the International Year of Disabled Persons. During that year, States were active in developing their disability programs, United Nations Decade of the 1980s International Decade of Disabled Persons (Al-Qarouti et al.,

2001). The right of children with special needs to enjoy the same high quality of care in the use of advanced technology in their learning, a fact that must be established in society, especially the impact of this educational technology can get the same quality of education as their peers.

The use of educational technology for people with special needs depends mainly on the degree of disability. When the degree of visual impairment is mild, assistive technology based on the sense of sight can be used in various forms, such as zooming on or the technology of providing sound associated with the visual material. While the degree of disability reaches its highest limit to reach a severe visual impairment, the use of audio-assisted technology is the best solution for the provision of learning material. This applies to the hearing disability, the more severe the disability, the more visual aid technology is used for learners with special needs (Gustafson, 2006p.58). Through this study, the researcher will provide examples of perspective of special education teachers in the use of educational technology techniques used in the education of children with intellectual disabilities, rehabilitation centers and social welfare, in order to highlight the importance of these techniques and their role in helping this group to integrate them into society, and fulfill their desires in education and self-development. The recent advances in technology have resulted in the availability of a range of devices in classrooms as learning tools and teachers now have options (Algahtani & Aldakhil, 2019). However, the uptake of these technologies varies from country to country and school to school, due to national policies, and teachers' knowledge, skills and attitudes (Alfaraj and Bawa Kuyini, 2014).

Problem of the Study

Although the use of computer-assisted technology to support the learning of students with special needs has grown exponentially in the last two decades (Klein, Cook & Richardson-Gibbs, 2001, pp. 26–27; Black & Wood, 2003a), some developing countries are yet to embrace technology use for students with special learning needs. Taking care of people with special needs is a religious requirement for all religions, and a social demand because they are part of society. They should have their chance and rights as other members of society, in addition to being an educational requirement based on their belief in their right to education as their true peers.

Aim of the Study

The aim of this study is to clarify the role of technology in the education of children with intellectual disabilities, in order to increase public awareness of the needs of these children with special needs and the importance of taking care of them and providing equal educational opportunities consistent with their abilities and readiness.

Research Questions

- What are special education teachers' perceptions about technology use for children with intellectual disabilities?
- What are the challenges of using technology for children with intellectual disabilities?
- . What are the factors can be used to improve the use of technology for children with intellectual disabilities?

This study is important because it will provide information about the various types of technologies being used in schools and the teachers' preparedness to use them.

2. LITERATURE REVIEW

The new technological technologies that special education teachers should use to support learning for children with intellectual disabilities:

Programs and curricula for students with special needs differ from the programs and curricula of ordinary students, in terms of their content and teaching methods. Special education programs are offered to students whose exceptional educational needs are provided with educational and training services that are individually tailored. Special education is concerned with providing students with special needs with services that are not available in the regular school. The need for students with special needs is linked to many services, including: motor skills, independence, language, behavior, security and safety, academic, social and professional. The goal of special education is to remove or alleviate the obstacles and barriers that prevent the disabled person from actively participating in the school and community life. The use of technology is one of the most modern and effective means of removing these barriers and barriers (Khatib, 2005, 85).

There is no doubt that the teacher of special education lives in a constantly changing social environment, this change is obvious to everyone. Today, it is more rapid than before, and the main source of social development, is the technological development we are now living in. Science and knowledge are increasing in quantity and quality amazingly, so the teacher must take on new roles that enable him to face these challenges and to meet them, and achieve the desired goals through training and preparation to raise its competencies and improve its performance. As the recent technological developments emphasize the use and employment of technology in education, making it part of this system by harnessing the educational techniques in their upbringing. This was confirmed by the recommendations of the Arab Special Education Conference, Reality and Hope (2005), as it stressed the need to develop modern technology in the service and education of those with special needs, and the use of technology in achieving many of the objectives of special education, such as the integration process and the implementation of the individual educational plan that deals with the student individually based on his potential and abilities, and these goals will not be achieved without the availability of important elements such as teacher Efficient technical means, material and technical support, and the elimination of all obstacles to the use of teaching techniques for these children. In this regard, the Association of Extraordinary Children (CEC, 2000) affirms that special education teachers have the skill to use technology and the ability to provide a meaningful learning environment that contributes to building positive attitudes towards the use of teaching aids for individuals with special needs. Teachers help students use different communication methods that contribute to the inclusion of that group in the outside community. Technology services are tasks that support the effectiveness and success of using technology devices for the individual. Technology services are provided by the Special Education Teacher, the General Education Teacher, the Language and Speech Specialist, or any other services related to individuals with special needs (Bryant & Bryant, 2003; Cook & Hussey, 2002). The most important modern technological techniques to support the learning of children with intellectual disabilities include helping to organize, and this requires: electronic calendar, notebooks, organized files, and audio booklets. It also includes support for solving arithmetical and spelling problems, and that requires: portable calculators, spell checking applications, and digital computing applications. On the other hand, it includes reading support, and that requires: shading words in color, e-books, reading pen, and text reading applications. Another factor of these techniques is writing aid, which requires: recording pens, voice communication devices, image and sound conversion applications, voice control aids. This is in addition to communication and expression, which requires: control devices for the typical movements, and applications to convert codes to texts, interactive books, and video recording.

The perceptions of special education teachers on the use of technology for children with intellectual disabilities:

The provision of special educational services and effective and appropriate support services for people with special needs requires well-trained cadres who are aware of developments in the field. Training of staff before and during service is one of the main tasks entrusted to the administrators of the Special Education Department, But, to carry out this task is effectively, that requires information on recent field practices and available training resources in the community. In this area, information technology also facilitates access to information. In addition, there are currently computerized programs that provide training directly to cadres. The most famous programs in this regard are the training program developed by the Council of Children with Special Needs (CEC) in America. This program offers music training for special education teachers in different places, Modification of Behavior (Khatib, 2005, 27).

Technologies Used to Support Learning and the Potential Challenges:

An assistive technology is defined as any item, gadget or product system, whether produced commercially, customized or modified, that is used to enhance, sustain or improve the functional capabilities of individuals with disabilities (Ryba, Curzon & Selby, 2005). There are different types of assistive technologies. They include switches, direct selection devices, scanning devices, alternative keyboards, alternatives to a mouse, speech-to-text and text-to-speech devices, multimedia devices and other specialised conversion devices (Ryba et al., 2005; James, 2003, p. 227).

Switch interfaces provide a channel through which people with learning disabilities can engage various devices and thus control the events in their environments (Ryba et al., 2005). Direct selection devices are equipment whereby the user activates a switch and something happens instantaneously (this is usually referred to as cause and effect or stimulus and response) (Ryba et al., 2005). Scanning devices represent a more sophisticated form of interaction with a computer. There are specialised scanning computer programs used to present a series of choices referred to as scanning array. Different alternatives can be identified by sound, for instance through a beep, by framing or by highlighting. The user of the device

then activates the switch after identifying the required choice (Ryba et al., 2005). Alternative keyboards are meant for learners who need specially designed keyboard layouts that can accommodate particular cognitive or physical challenges (Ryba et al., 2005). Alternatives to a computer mouse are available because using the ordinary mouse is cognitively challenging (Ryba et al., 2005). Also available are speech recognition devices, which are used in converting spoken words or sentences to text (Al Shamsi et al., 2006, p. 148). Multimedia devices are defined as gadgets that offer any combination of text, graphic, animation, video and sound that are delivered by a computer system. Such devices thus allow users or viewers of a project to control when and where these elements are delivered. Multimedia applications enable learners to explore the media content by themselves, at their own speed, and to anticipate non-threatening guidance from the computer program (James, 2003, pp. 227-228). There also are other types of specialized conversion devices such as the Mountbatten Brailier™, which makes any typed text to be printed rapidly, spoken or embossed in Braille. There are also other devices which convert text to refreshable Braille. Other devices can also convert Braille to speech using a system such as the Braille Lite™, which has a number of applications such as a word processor, a database, a calculator, and a diary (Ryba et al., 2005).

Hasselbring and Glaser (2000) also argue that technologies such as the Internet can be used by learners to communicate and network, hence being able to expand their learning environment beyond the walls of the classroom. The authors also suggest that technologies like the Internet facilitate the students' capacity to make personal connections with others and offer opportunities to pay attention to writing skills within a perspective that they value, devoid of the fear of being stigmatized (p. 108). Other tools like tablets and/or desktop computers or laptops can also be used to enhance students' learning as is evident through the case highlighted by Layton (2011) in North Carolina, the US. iPads and iPods are also on record for playing a vital role as a technology tool for children with DS (Lester, 2012). In reference to the iPad, Layton (2011) notes that at first, "Most children...are quite taken by the technology. They focus more, interact more, interact with it easily, and verbally interact with the appropriate apps" (para. 1). In the larger US, a study conducted by Hasselbring and Glaser (2000) suggested that the use of computer technology among students with learning needs studying in integrated classrooms can help them keep up with their non-disabled peers. Where students have severe learning disabilities as would, Hasselbring and Glaser (2000), found out that special technological interventions developed specifically for purposes of aiding children had a positive impact on learning outcomes. On the other hand, the research by Nadkarni et al. (2012), which was conducted in the UAE, was aimed at understanding the correlation between visual-spatial abilities and eye-hand coordination based on the re-training strategy.

Obstacles and difficulties faced by teachers of special education in the use of technology to support learning for children with intellectual disabilities:

In his study, Husawi pointed out that the use of modern technologies focuses on the use of technologies in education and their employment in a way that makes them an essential part of education, not just an addition. The disabled students are part of this targeted system, which will change the educational techniques in their education, this was confirmed by the recommendations of the Arab Special Education Conference, as it stressed on the need to develop modern technology in the service and education for people with learning difficulties. This is in addition to the use of techniques in achieving many of the special educational goals such as integration teachers, which interact individually with the student based on his abilities, and the implementation of the individual educational plan, if all these goals are achieved without providing important elements such as efficient teacher and providing technical means and material and technical support and remove all obstacles that prevent the use of techniques in the teaching of these students (Ibrahim, et al., 2017, 19).

3. METHODOLOGY

The descriptive approach was used to measure the perspectives of special education teachers in using technology to support learning for children with intellectual disabilities. Descriptive research can be explained as a statement of affairs as they are at present with the researcher having no control over variable. Moreover, "descriptive studies may be characterized as simply the attempt to determine, describe or identify what is, while analytical research attempts to establish why it is that way or how it came to be" (Ethridge2004). Descriptive research is "aimed at casting light on current issues or problems through a process of data collection that enables them to describe the situation more completely than was possible without employing this method." (Fox& Bayat, 2007).

In its essence, descriptive studies are used to describe various aspects of the phenomenon. In its popular format, descriptive research is used to describe characteristics and/or behavior of sample population. An important characteristic of descriptive research relates to the fact that while descriptive research can employ a number of variables, only one variable is required to conduct a descriptive study. Three main purposes of descriptive studies can be explained as describing, explaining and validating research findings.

Participants, Sample and Sampling Procedures

The study sample consisted of (40) special education teachers working in special education centers in the city of Taif (private and governmental centers). They answered the study tool. The researchers purposefully selected four centers which offer education to children with special needs and which use different types of technologies to assist these children in learning

Instruments

The study tool consists of a two-part questionnaire aimed at identifying the views of special education teachers in using technology to support learning for children with intellectual disabilities. This allowed the respondents to provide their own answers to the questions. The questionnaire was developed by the researchers and focused on questions around what technology is used in teaching, the benefits of the technology, the effectiveness of the use of technology, the challenges of using technology and what can be done to improve the use of technology (Alfaraj & Bawa Kuyini, 2014).

Data Collection

Before data collection, ethics approval was sought from the Ethics Committee. Once the ethics committee approval was obtained, the researcher contacted special education teachers working in special education centers in the city of Taif (private and governmental centers). The centers were The Voice of Children with Intellectual disabilities. On four different days, the researcher visited each center to seek the teachers' approval for data collection. During each visit, the teachers were provided with copies of Information Sheet, Consent Forms and Questionnaire Schedules. Upon the teachers' approval for the research to proceed, the researcher was given an appointment to have a meeting with the participants from each center (ten participants from each center). Questionnaires were distributed to participants during the meetings and each participant was required to answer the questions and return to the researchers. Some of the completed questionnaires were collected on the day and others were collected some days later.

Data Analysis

The data from the questionnaires were analyzed according to the existing questions, which served as pre-determined themes and sub-themes. The answers to each question from all of the 40 participants were summarized so that the researcher could make sense of what the teachers thought about the question, and by doing so obtained comprehensive information, which is presented in the results section.

4. RESULTS AND DISCUSSION

To verify the validity of the first question, which states: *What are special education teachers' perceptions about technology use for children with intellectual disabilities?*

The researcher extracted the mathematical averages and standard deviations of the question paragraphs. The perceptions of the special education teachers on the use of technology for children with intellectual disabilities were highly appreciated, with a total average of their perception (4.8), And a standard deviation (0.691). The researcher believes that the reason for this is that the technological techniques are available in kindergarten centers, and available to special education teachers for use and employment in educational situations with children with intellectual disabilities.

To verify the validity of the second question, which states: *What are the challenges of using technology for children with intellectual disabilities?* The researcher performed the (ANOVA) test.

Table (1) shows the results of the ANOVA test to determine the Perspectives of special education teachers on the magnitude of the challenges of using technology for children with intellectual disabilities, which are attributed to the number of training courses.

variable	Source	sum squares	df	Mean squares	f	Sig.
Challenges of using technology	Between groups	115.795	2	57.898	447	0.021
	Within groups	2100.372	27	77.792		
	Total	2216.167	29			

The above table shows that the value of (F) (477) at a probability value of (491) is not statistically significant, indicating that the goal has not been achieved. There are differences in the Perspectives of special education teachers regarding the challenges of using technology for children with intellectual disabilities Return to training courses. The researcher sees that the challenges decrease as the teacher of special education for many training courses, and provides more experience in teaching Intellectual disabled children.

To verify the validity of the third question, which states: **What factors can be used to improve the use of technology for children with intellectual disabilities?** The researcher calculated the arithmetical averages and standard deviations of the questionnaire paragraphs in the field of factors that can be used to improve the use of technology for children with intellectual disabilities. The following illustrates this.

Table (3) Arithmetic averages, standard deviations, order, and Grading scores of the field of factors from the Perspectives of special education teachers to use technology to support learning for children with intellectual disabilities

	paragraph	mean	standard deviation	order	Grading
1	Providing technological aids to teach children with intellectual disabilities.	5.0000	0.704	1	very high
2	Increase lesson time to enable special education teachers to use learning resources for these children.	5.0000	1.169	1	very high
3	On-the-job teacher training to provide them with advanced and advanced 5.0000technological skills.	5.0000	0.966	1	very high
4	Providing free computer programs to support the learning of people with intellectual disabilities.	5.0000	0.704	1	very high
5	Providing the Internet within Kindergarten classes.	5.0000	0.751	1	very high
6	Generalize all programs to support the learning of people with intellectual disabilities to all private centers in the country.	5.0000	0.704	1	very high
7	Reduce the prices of devices and programs for the education of people with mental disabilities, to be available.	5.0000	0.754	1	very high
8	Encourage teachers and motivate them.	5.0000	0.741	1	very high
9	Increase the salaries of special education teachers to motivate them to increase their interest in educating children with intellectual disabilities.	5.0000	0.404	1	very high
	Total	5.0000	0.892	—	very high

It is clear from the above table that all the elements of the axis of factors that can be used to improve the use of technology for children with intellectual disabilities have been approved and to a high degree, as shown in the table, indicating that the vast majority of special education teachers with these factors and proposals.

Summary of results:

The results of the study found out about the needs of the child with mental disability and how to satisfy them which greatly helps the child to grow as soundly as his or her abilities allow. The results also highlighted the challenges faced by special education teachers, and stressed that these challenges decrease as the teacher of special education undergoes many training courses and provides more experience in teaching mentally disabled children. On the other hand, the study referred to the recent trends in the fields of special education, which imposed its challenges on the standards of preparing special education teachers. The study stressed that special education teachers have the skill to use modern technological techniques and the ability to provide a meaningful learning environment that contributes to building positive attitudes towards the use of technological means and technologies for children with intellectual disabilities. Finally, the study stressed that the modern educational directives that advocate the integration of special needs with their ordinary peers requires the professional qualification of teachers.

Recommendations:

In the light of the results of the present study, the researcher recommends that when selecting and using technology to support learning for children with intellectual disabilities, the type and complexity of learning difficulties should be taken into account, and also taking into account the special needs of the mentally disabled child. He also recommended the need to provide technology in the learning resource centers for people with special needs in all centers of special education, and the use of technology in the preparation and design of programs for the education of people with disabilities, each according to his disability. On the other hand, the researcher stressed the role of continuous technical support for teachers to enable them to fully understand the possibility of modern technology to get the most benefit from these technologies to children with special needs. It also called for concerted official and informal efforts to provide financial support to provide the centers' needs with supporting technology tools. The researcher also recommended the need to hold workshops and training courses in special education centers and to learn about the latest developments in the use of technology to support learning for children with mental disabilities, this is in addition to conducting similar studies on all other disabilities and their specialists from special education teachers.

Study suggestions

The study suggested similar studies involving all educational zones and calls for the use of technology to support learning for children with intellectual disabilities, based on a teaching program for special education teachers concerning modern techniques of special education to develop their skills in this field. This is in addition to the development of a future vision and a developed approach to the education of this group of children with mental disabilities, with comparative studies before the use of technology and after use. In addition to conducting a similar study from the Perspectives of workers in the field of special education and in the field of various disabilities.

REFERENCES

- [1] Abdul Ghaffar, A. R. (2003). Education of Mentally Retarded, First Edition, Dar Al Fajr Publishing and Distribution, Cairo, Egypt.
- [2] Ahmed, Sh. (1989). Preparation of the teacher of special education and its requirements in the Arab world, the Arab Journal of Education, March, 9(1), pp. 8-31.
- [3] Alfaraj, A., & Kuyini, A. B. (2014). The Use of Technology to Support the Learning of Children with Down Syndrome in Saudi Arabia. *World Journal of Education*, 4(6), 42-53.
- [4] Algahtani, F., & Aldakhil, A. L. I. (2019). Challenges Faced by Teachers of Students with Intellectual Disabilities in Primary Mainstream Schools. *Transylvanian Review*, XXVLL(1221-1249), 9497-9506. Retrieved from <https://transylvanianreviewjournal.org/index.php/TR/article/view/3673>
- [5] Bryant, D. P., & Bryant, B. R. (2003). Introduction to assistive technology devices and services. *Assistive Technology for People with Disabilities*. Boston: Allyn and Bacon.
- [6] Cook, A. M., & Hussey, S. M. (2002). Introduction and overview. *Assistive Technologies Principles and Practice*. St. Louis, MO: Mosby.

- [7] Gustafson, S.G. (2006). The assistive technology skills, knowledge, and professional development needs of special education in southwestern Virginia. Dissertation, Faculty of the Virginia Polytechnic Institute, State University.
- [8] Hallahan, D.&Kauffman (1994): Exceptional Children Englewood.
- [9] Ibrahim, Z. M., Abdul Rahman, Z. A., and others (2017). Obstacles to the use of special educational techniques in the teaching of mentally disabled children as recognized by experts in the field, supplementary research to the bachelor degree, Faculty of Education, Sudan University of Science and Technology.
- [10] karehka Ramey (12-12-2013), "What Is Technology – Meaning of Technology and Its Use" ‘Use OfTechnology, Retrieved 6-2-2017. Edited.
- [11] Khatib, J. (2005). Uses of Technology in Special Education, Faculty of Educational Sciences - University of Jordan.
- [12] Khatib, J. (2005). Uses of technology in special education. First Printing, Amman: Dar Wael Publishing and Distribution.
- [13] Qaryuti, Y. , Sartawi, A., and Smadi, J. (2001). "Introduction to Special Education". Dubai, Dar Al Qalam for Publishing and Distribution.
- [14] Rusan, F. (2003). Introduction to Mental Disability, Dar Al Fikr for Printing, Publishing and Distribution, Jarir Library, Second Edition.
- [15] Salim, A. M. (2004). Educational Methods and Technology, 1st edition , Al-Rushd Bookstore for Publishing and Distribution, Riyadh, Saudi Arabia.
- [16] Zaiton, K. H. (2003). Teaching for Special Needs, 1st edition , World Books Library, Cairo, Egypt.
- [17] Zarzis, J. and Ismail, S. (1991). "The Role of Information Technologies in the Service of Persons with Disabilities in National Libraries", Proceedings of the Second Arab Information Symposium, Tunis, Arab Federation of Libraries and Information, (18-21 January 1991), 16-32.