



EXPERIENCES OF EXPERTS IN USING ASSISTIVE TECHNOLOGY

ISKUSTVA STRUČNJAKA U KORIŠTENJU ASISTIVNE TEHNOLOGIJE

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ABSTRACT

Assistive technology is a collective term that refers to assistive devices and services for people with disabilities. The use of assistive technology in working with people with disabilities facilitates their learning and performance of activities of daily living. The knowledge and experience of experts is necessary for the selection, purchase, and use of assistive technology. For the purpose of this work, an online survey was conducted among experts in Bosnia and Herzegovina who had the opportunity to use and apply assistive technology through their work. The research participants (N=23) were educational rehabilitators, speech therapists, teachers, pedagogues, physiotherapists, and nurses. The online questionnaire consisted of 33 open and closed-ended questions. The data obtained were processed using quantitative and qualitative data processing methods. The aim of the research was to ask experts in Bosnia and Herzegovina about their experience with the use of assistive technology, their knowledge and attitudes, and the challenges they face in their work. The results show that assistive technology has not been used for long in Bosnia and Herzegovina and that experts encounter many challenges in their work, such as financial problems, lack of technical support, and difficulties in working with parents. They also emphasize the need for more training in assistive technology.

Keywords: assistive technology, experts, experience, knowledge, education.

SAŽETAK

Asistivna tehnologija je skupni pojam koji se odnosi na pomoćne i prilagodljive uređaje za djecu s teškoćama u razvoju i osobe s invaliditetom.

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Primjena asistivne tehnologije u radu s djecom teškoćama i osobama s invaliditetom olakšava njihov proces učenja i obavljanja svakodnevnih aktivnosti. Kako bi odabir, nabavljanje i primjena asistivne tehnologije bili adekvatni, potrebno je znanje i iskustvo stručnjaka. Ovo istraživanje provedeno je online, a usmjereno je na stručnjake sa područja Bosne i Hercegovine koji su kroz svoj rad imali priliku koristiti i primjenjivati asistivnu tehnologiju. Sudionici istraživanja (N=23) bili su edukacijski rehabilitatori, logopedi, učitelji, nastavnici, pedagozi, fizioterapeuti i medicinska sestra. *Online* upitnik se sastoji od 33 pitanja otvorenog i zatvorenog tipa. Dobiveni podaci su obrađeni kvantitativnim i kvalitativnim metodama obrade podataka. Cilj istraživanja je bio ispitati stručnjake na području Bosne i Hercegovine o iskustvu korištenja asistivne tehnologije, njihova znanja i stavove te na koje sve izazove nailaze tokom svog rada. Rezultati ukazuju da se asistivna tehnologija ne koristi dugo u Bosni i Hercegovini te da stručnjaci prilikom korištenja nailaze na brojne izazove poput financijskih problema, nedostatak tehničke podrške i na teškoće suradnje s roditeljima. Također, naglašavaju potrebe za većim brojem edukacija vezanih za asistivnu tehnologiju.

Ključne riječi: asistivna tehnologija, stručnjaci, iskustvo, edukacija.

INTRODUCTION

Before assistive technology (AT) existed, people with disabilities relied more on those around them and their care. In the past decades, technology has advanced, and new devices have been developed to make life easier for everyone, including people with disabilities (Rose et al., 2003 according to Kravaršćan, 2019). With the development and advancement of technology and advances in social sciences, there have been advances in assistive technology that provide people with disabilities the opportunity to achieve some level of independence, self-determination, active participation, and improvement in mood (Lancioni et al., 2005, 2008; Lancioni et al., 2013 according to Katic, 2016). According to Reed (2007), assistive technology is any device that enables a person with disabilities to perform a task that they cannot otherwise perform independently, i.e., it enables a task to be completed faster, easier, and more easily. The selection of assistive devices for each user should be individualised and in accordance with the person's abilities and needs, and the user's family should not be forgotten in the selection process. Appropriate selection and use of assistive technology can have a positive impact on users, contribute to their learning and independence, and thus positively affect the quality of life of the user and his or her family (Lazor, Isakov, and Ivković, 2012). When an assistive technology solution is incorrectly selected and does not fit the user, possible negative consequences include impaired self-confidence, lack of motivation, refusal to participate, and disappointment (Lazor, 2017). Educational rehabilitators play a very important and significant role in the selection of assistive technology. Michaels and McDermott (2003 after Jurišić, 2021) state that educational rehabilitators are experts in finding assistive technology and ways to apply it in the daily life of individuals and their families. In addition, their role is to assist parents in choosing an appropriate assistive device, and it is important that they take into account the culture and values of the family during this process.

The attitude of the educational rehabilitator plays an important role in the application of assistive technology among users (Nam, Bahn, and Lee, 2013 after Jurišić, 2021). If educational rehabilitators do not have sufficient knowledge about assistive technology, it may lead to frustration and rejection of the use of assistive technology by users. For this reason, it is necessary for educational rehabilitators to be familiar with the use of various assistive technology devices so that they can be as successful and confident as possible in teaching the use of assistive technology, because if they do not have sufficient knowledge and are not sure how to use the device, it will be difficult to provide the necessary information to the user and their family (Michaels and McDermott, 2003 after Jurišić, 2021). In 2021, a study was conducted in the Republic of Croatia to investigate the knowledge and experience of educational rehabilitators in the use of assistive devices. A total of 64 pedagogical rehabilitators employed in the Republic of Croatia participated. The results show that about half of the respondents are familiar with the forms of assistive technology, and that there is a need for additional training, information and awareness of society about assistive technology. This is also evident from the findings that a small percentage of educational rehabilitators are considered adequately trained and aware of the assessment tools for selecting appropriate assistive technology. The results also indicate difficulties faced by pedagogical rehabilitators, such as financial difficulties, lack of technical support and professional team, difficult cooperation with parents and other experts (Pongrac, 2021). In Bosnia and Herzegovina, there are no previous studies on the experience and knowledge of professionals in the use of assistive devices in working with people with disabilities. With this study, we aim to gain insight into the familiarity of experts in Bosnia and Herzegovina with assistive technology and its application in everyday work, and what challenges they face. The results of this research will provide an insight into the previous experiences of experts in the use of assistive technology and in which areas of their work they encounter certain difficulties. The aim of the research is to investigate and determine the level of information and experience of professionals exclusively in the territory of Bosnia and Herzegovina, who are in daily contact with people with disabilities, about assistive technology, experience with the use of assistive technology, methods of information and education about assistive devices and the challenges they face in their work.

MATERIAL AND METHODS

Sample of participants

Experts with different profiles participated in the study: educational rehabilitators, speech therapists, physiotherapists, teachers, pedagogues, educators and nurses. The criterion for participation was that the expert has some experience with assistive technology and is or has been employed in Bosnia and Herzegovina. A total of 23 respondents participated. There were a total of 21 female respondents, which is 91.3%, and 2 male respondents, which is 8.7% to be exact. The respondents who participated in the survey varied in age: 8 respondents were under 30 years old (34.8%), between 30 and 40 years old were 5 respondents (21.7%), and between 40 and 50 years old were 10 respondents, for a total of 43.5%.

The respondents are employed in different systems, and of the 23 respondents, most are employed in the education system, a total of 15 respondents, which is 65.2%, then 5 respondents (21.7%) are employed in the private sector, in a church institution 1 respondent (4.3%), in the health system 1 respondent (4.3%) and one respondent reported being unemployed.

Method of conducting research

The survey was conducted online. The link to the questionnaire was sent by e-mail to numerous educational and rehabilitation institutions and centers, workshops, private institutions, health centers, kindergartens and elementary school on the territory of Bosnia and Herzegovina. Respondents needed 15-20 minutes to complete the questionnaire. The data collection took place in March, April and May 2022.

Measuring instruments

For the purposes of the study, the online questionnaire on the use of assistive technology for experts was used (Pinjatela et al., 2021). The questionnaire was created within the framework of the project "Platforma 50+" in the Republic of Croatia and used for research purposes. In total, it consists of 33 questions that can be divided into three sections: The first part of the question was related to general information about the respondents, the second part was related to the respondents' experience and knowledge about the use of assistive technology and the challenges they face, as well as methods of education about assistive technology, and the third part was a Likert scale, where the respondents answered the offered statements with answers from 1 to 5 (1- I do not agree at all, 2- I mostly disagree, 3- I neither agree nor disagree, 4- I mostly agree, and 5- I totally agree). The format of the questions in the questionnaire is mostly closed-ended, and there was one open-ended question where respondents wrote their own answers.

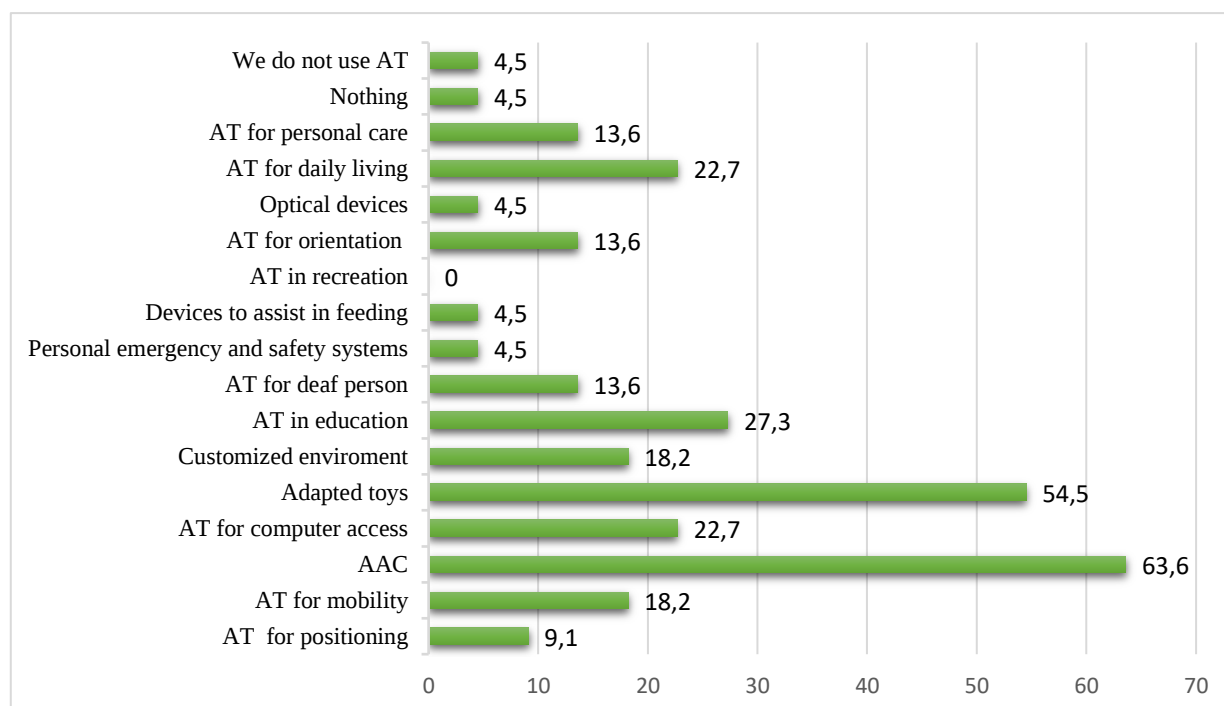
Data processing methods

The data obtained from the respondents had to be processed using quantitative and qualitative methods. Closed questions were processed in the SPSS program using descriptive statistics methods. Open questions, to which respondents wrote their own answers, were processed using qualitative data processing methods (coding, categorization and subcategorization).

RESULTS AND DISCUSSION

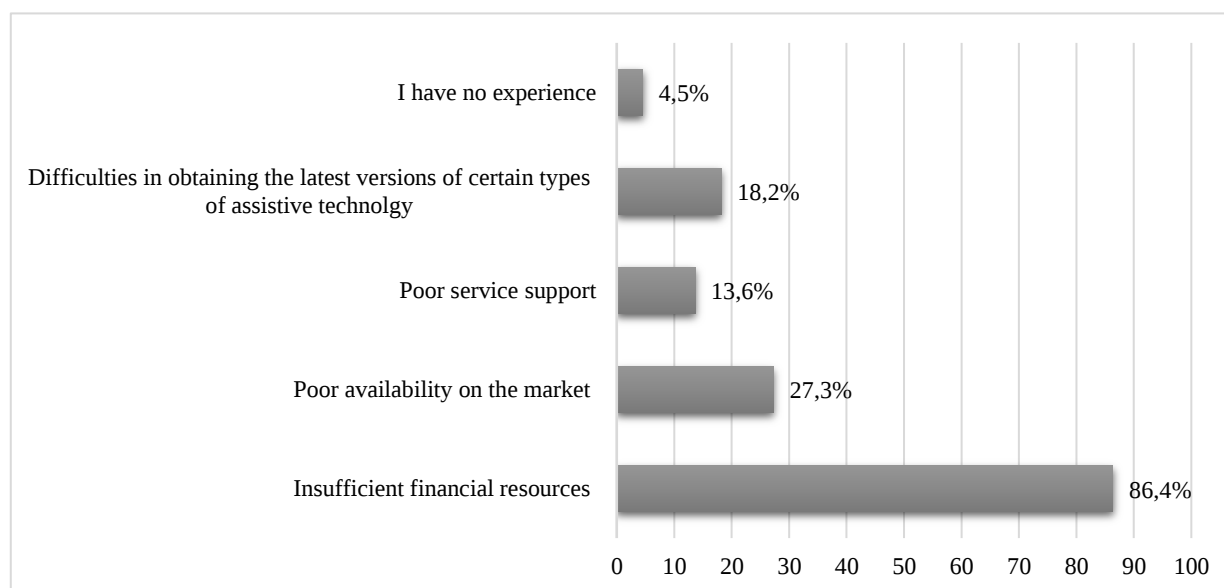
Respondents were asked to check off the answer where they first encountered the term "assistive technology." Most respondents indicated that they first encountered the term at university, a total of 12 respondents, which corresponds to 52.2%, while 5 respondents answered at work, which corresponds to 21.7%. Two respondents each (8.7%) indicated in response that they encountered the term from work colleagues and through the media (press, television, internet), and 1 respondent indicated that he or she had been to a conference on

assistive technology, which corresponds to 4.3%. 22 out of 23 respondents answered this question. In addition, respondents were asked to indicate whether they use assistive technology in their daily work. A total of 19 respondents answered, of which 14 indicated that they use assistive technology on a daily basis (60.9%) and 5 respondents indicated that they do not (39.1%). Respondents were asked a question asking them to rate the usefulness of AT with numbers from 1 to 5 (1 - almost useless, 2 - somewhat useful, 3 - neither useful nor useless, 4 - useful, 5 - extremely useful). None of the 23 respondents chose answers 1 and 2, answer 3 was chosen by one respondent (4.3%), answer 4 was chosen by 13 respondents (56.5%), while answer 5 was chosen by 9 respondents (39.1%). To the question "What forms of assistive technology do you use in your work?" the respondents gave the following answers: AT for positioning was chosen by 2 respondents (9.1%), AT for mobility was chosen by a total of 4 respondents (18.2), the largest number of respondents chose augmentative and alternative communication (AAC), a total of 14 respondents (63.6%), AT for computer access was chosen by 5 respondents (22.7%), adapted toys/games were chosen by 12 respondents (54.5%), adapted environment (home management) was chosen by 4 respondents (18.2%), AT in education was chosen by 6 respondents (27.3%), electroacoustic hearing aids (personal devices such as hearing aids, personal sound systems and systems for room sound,...) were chosen by 3 respondents (13.6%), personal systems for emergency assistance and safety were chosen by 1 respondent (4.5%), devices to assist with eating were also chosen by 1 respondent (4.5%), devices to assist with recreation were not chosen by any respondent, AT for orientation and movement was chosen by 3 respondents (13.6%), optical aids were chosen by 1 respondent (4.5%), aids for performing activities of daily living were chosen by 5 respondents (22.7%), aids for health care were chosen by 3 respondents (13.6%), the answers "nothing" and "we do not use" were chosen by 1 respondent each, accounting for 4.5% (Chart 1).



Graph 1. Forms of AT used by respondents in their work

When asked about the difficulties faced by the experts in their work with assistive devices, more specifically in obtaining and using assistive devices in their work, the answers are as follows: Most of the respondents, 19 in total, mentioned insufficient financial resources as a difficulty, and they make a total of 86.4%, the answer poor availability on the market was chosen by 6 respondents, which corresponds to 27.3%, poor service support was mentioned by 3 respondents, i.e. 13.6%, difficulties in obtaining the latest versions of certain types of assistive devices were mentioned by 4 respondents, which corresponds to 18.2%, and I have no experience was indicated by 1 respondent, i.e. 4.5% (Chart 2).



Graph 2. Difficulties in acquiring and using AT

The results show that experts in Bosnia and Herzegovina consider assistive technology useful and that they see progress in people with disabilities due to the use of assistive technology. In addition, the experts state that they encounter difficulties when working with parents and other experts. The experts emphasize the need for more education and better financial support from the government and that information about assistive technology should be made more available to the public. Experts were asked to indicate the possible reasons for insufficient information about assistive technology for people with disabilities and their families. The experts' responses were processed using qualitative methods of data processing - thematic analysis. As possible reasons, most of the respondents mentioned the unavailability of information about assistive technology and accordingly gave the following answers such as "insufficient information", "insufficient information", "very little accessible information about the use of AT in our field", "no information at all, neither for parents nor for children". Regarding the family, according to the experts' statements, it can be concluded that poverty and a low level of education of the family members are a challenge. ". In addition, the experts note that in some situations there is a lack of interest of parents and non-participation in decisions related to the use of assistive devices with their children ("parents are not interested in AT, they leave the decisions to people who work with children, they do not follow the offers on the AT market").

Due to the "lack of financial coverage" and the high "prices of devices", this is also one of the possible reasons for the insufficient information, according to the experts, because if a family learns that they cannot afford a certain assistive device, it means that they do not even inform themselves about assistive devices because they are financially unaffordable for them. . The experts state that their "insufficient education" and "insufficient use of assistive devices" can also be the reason for insufficient information of people with disabilities and their families, and accordingly make claims: "I think that we experts are not informed enough, therefore the above population is consequently not", "In our fields we are still trying to raise awareness about the activities of educational rehabilitators, people are not yet familiar with such information, and even less about assistive technology". Vinčić (2016) states that there is a need for information about assistive technology to be available to everyone, especially experts working with people with disabilities. Similar results were obtained in the Republic of Croatia in the research conducted by author Pongrac (Pongrac, 2021).

CONCLUSION

Although there are not many experts in Bosnia and Herzegovina who use assistive technology in their work, it can be concluded from this research that experts do indeed consider assistive technology important and useful. The most used form of assistive technology in Bosnia and Herzegovina is augmentative and alternative communication (AAC), and it is also the form of assistive technology with which the experts are most familiar. "Alternative and augmentative communication is a set of tools and strategies that we use to supplement, replace, or increase our ability to communicate" (Zagoršek, 2021). Batišić Pešić (2012 according to Cvjetković, 2020) states that in Croatian language augmentative and alternative communication is called supported communication (AC). Augmentative and alternative communication includes strategies and tools whose purpose is to facilitate communication, and interventions can be divided into those that do not use external objects, such as sign language, and those that use various tools, such as visual symbols (Hartzeim, 2017 according to Komjetan, 2021). Research findings point to the problem of parents of children with disabilities and adults with disabilities not being informed about assistive technology. Therefore, to reduce this problem, it would be necessary to provide opportunities for information and education about assistive technology to parents and families of people with disabilities. According to research participants, poor collaboration with parents is a challenge for them, and educating and informing parents could alleviate current collaboration difficulties and thus facilitate the use of assistive technology. Other problems with the use of assistive technology in Bosnia and Herzegovina cited by the experts include the lack of financial support and the lack of technical support. As far as financial problems are concerned, it would be most effective at the local and national community level to ensure the necessary financial support to make assistive technology as accessible as possible. The availability of ongoing technical support would facilitate its use. Addressing financial issues is important because more than half of the respondents consider assistive technology too expensive and indicate that they would use assistive technology more often in their work if it were more available.

According to the results of the research in Bosnia and Herzegovina, most experts have been using assistive technology for up to five years, which indicates that assistive technology are a relatively new concept in our country, but regardless of this, experts have recognized their importance and usefulness in their daily work. The results of the research helped to gain insight into the knowledge and experience of experts in Bosnia and Herzegovina regarding assistive technology and their application at work. The results also show the challenges faced by the experts, and it would be necessary to focus more on these issues in future research to find solutions to alleviate and eliminate the difficulties faced by the experts. Since only 23 people participated in this research, it is necessary to include a larger number of experts in future researches to obtain better data.

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