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THE USE OF E-LEARNING IN EDUCATION FOR PEOPLE WITH MILD INTELLECTUAL DISABILITY IN THE CONTEXT OF THEIR MENTAL WELL-BEING

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***Abstract:** The use of modern information and communication technologies by people with mild intellectual disability, which enables the application of e-learning methodology, i.e., distant learning based on information and telecommunication technologies, is definitely part of the current trend of media education also in this social group. It is worth remembering that in addition to profits which result from engaging people with mild intellectual disability, such as autonomously making decisions and choices or establishing social relationships, the development of modern information technologies is often related to reduced interpersonal contacts face to face and may contribute to the crisis of fundamental values, which may potentially be dangerous to the person's mental well-being.*

The paper discusses the issue of using e-learning education as a modern information and communication technology in the process of educating people with mild intellectual disability. It also analyzes the relationship between using those civilization achievements and the mental well-being of people with mild intellectual disability.

Keywords: intellectual disability, e-learning, Internet, mental well-being

INTRODUCTION

In the contemporary world dominated by quickly developing modern information and communication technologies, where distance learning is used more and more frequently, both in universal and higher levels of education, we should not ignore the issue of using e-learning understood as the process of transmitting selected pieces of information via various electronic carriers (Penkowska 2010), also in the education for intellectually disabled people. This issue is especially important because the group of intellectually disabled people is usually absent from

Polish and international literature concerning the problem of the use of modern information and communication technologies by people with special educational needs, which makes them “excluded among the excluded” (Plichta 2012 p. 74). Many authors (i.a., McCliments, Gordon 2008, Seale 2007, Plichta 2012) point out the shortage of scientific works concerning online behaviours and new media use of intellectually disabled people. This problem is also important because the environment of new media, including the Internet, is extremely significant nowadays, both for socialization (allowing intellectually able and disabled alike to communicate and establish interpersonal relationships) and for education (allowing them to acquire knowledge and raise their professional qualifications).

In the time of this dynamic development of modern information technologies, often connected with reduced direct interpersonal contacts, we can see an increasing crisis of fundamental values, often resulting in emotional problems and lower well-being. Therefore, it seems vital to discuss the problem of relationship between mental well-being and the use of current ICT solutions, including e-learning, that is, education via modern information technologies (Łysek 2005), not only with reference to healthy people but also to those with disabilities, especially intellectual disabilities.

The leading goal of the presented article is to pay attention to a new and significant problem of the modern technology information, especially the e-learning method which might determine the mental level of well-being people with the intellectual disabilities. The link between the new technology information and the mental stage of well-being people with the intellectual disabilities leads to a predicament which is a research gap. However, the presented article has got the theoretical nature where the implemented methodology in use contains synthesis of literature of the subject and its critical analysis. This particular research method gives an opportunity of the subsequent usage of scientific exploration and the induction processes. Moreover, it allows to carry out advanced empirical research whose results may become a significant contribution to science.

1. MODERN INFORMATION AND COMMUNICATION TECHNOLOGIES IN THE LIVES OF INTELLECTUALLY DISABLED PEOPLE

Discussing the use of modern information and communication technologies (ICT) by disabled people, including those with intellectual disabilities, we need to point out that in our quickly changing world, these technologies have become an indispensable element of daily life of nearly all humans, regardless of their level of ability (or disability). As Plichta emphasizes, a very important area of life opportunities and full participation in the world currently is the access and ability to use modern media – simply speaking, the Internet and its many functions (Plichta 2013, p. 122). The importance of ICT competence, understood as “the use of computers to retrieve, assess, store, produce, present and exchange

information, and to communicate and participate in collaborative networks via the Internet” (Recommendation of the European Parliament 2006), is stressed by the fact that it was regarded by the European Parliament and the Council as one of the eight key competences that play a significant role in lifelong learning. Knowing how to use modern technologies has become necessary in many aspects of functioning of a contemporary human, from looking for and doing a job, through effectively searching for information, establishing and maintaining social contacts, developing one’s interests, spending leisure time in an interesting way, up to education and raising professional qualifications (Chudnicki, Mielczarek 2018).

Hence, the issue of using modern information and communication technologies (including the Internet) by people with intellectual disabilities should definitely be discussed, especially that the use of modern technologies by disabled people, let alone people with intellectual disabilities, is rarely the subject of scientific works (Chudnicki, Mielczarek 2018 p. 250).

Discussing the problem of using modern information technologies, we need to point out that one of the groups with particularly difficult access to these technologies is intellectually disabled people, who are at a huge risk of exclusion, also digital exclusion. The cause of this is not only that they do not have the needed equipment or Internet connection. There are more factors, such as individual needs, access to media education and its quality, enabling the person to use the new media in a way that is adjusted to their needs and capabilities. It seems, as Plichta points out, that in the area of education, we too often concentrate on ensuring physical access to ICT only, not on proper training for teachers, modifying curricula or in-depth reflection on how to use those technologies, both in teaching and in personal development (Plichta 2012 p. 70).

Using new media seems to have a positive effect on the quality of life and social inclusion, whereas limited access to modern information and communication technologies increases disproportions in many spheres, i.a., in educational, social, economic and political one (Chudnicki, Mielczarek 2018). In addition, modern information and communication technologies seem to play an important role in the process of social integration of marginalized persons (Plichta 2012), and this group definitely covers people with intellectual disabilities.

When analyzing the issue of intellectually disabled people using modern information and communication technologies, we need to stress that the problem can only be discussed with reference to people with mild intellectual disability, because in the case of the other groups of intellectually disabled people, especially those with severe or profound intellectual disability, the capability of autonomously using the computer and the Internet is very limited, and in some cases, even impossible.

Since this work presents the analysis of the application of e-learning in education for people with mild intellectual disability, the very term of intellectual disability

(for many years referred to as mental retardation) needs to be explained. The American Association on Intellectual and Developmental Disabilities (AAIDD) has proposed a new, more positive definition of intellectual disability: "Intellectual disability is a disability characterized by significant limitations in both intellectual functioning and in adaptive behavior, which covers many everyday social and practical skills. This disability originates before the age of 18" (Luckasson et al, 2002, p. 1). Unlike the previous model stressing deficits and limitations of the person, the current approach to intellectual disability defines intellectual disability with reference to support necessary for the person with intellectual disability to function autonomously in the society as much as possible (Polloway 1997). The definition proposed by the American Association on Intellectual and Developmental Disabilities is based on IQ scores below the threshold value of about 70 as one of the criteria decisive for intellectual disability. In mild intellectual disability, IQ is between 50 and 69 points, and this kind of disability results in learning difficulties with retained ability to work, maintain proper social interactions, and contribute to the life of the community (Smith 2009).

It is worth pointing out that new information and communication technologies may play a key role in all the three basic areas of intellectual disability, such as cognitive difficulties (e.g., problems with memorizing, informal learning and generalization of learning), adaptive difficulties (e.g., the ability to function autonomously), and the need of support in autonomous, independent living. As argued by Plichta, in our times, adaptive abilities do not only refer to the offline environment, but they should also be analyzed from the perspective of availability and use of modern media. Therefore, the environment of modern information technologies, particularly the Internet, which makes distance learning possible, is the place where the potentials of disabled (including intellectually disabled) people can be revealed, and where opportunities arise for fuller participation of this group in social life (Plichta 2012).

The available studies and analyses, though few, clearly show that people with intellectual disabilities are active Internet users, who autonomously engage in various activities to satisfy their needs in their leisure time (Plichta 2012). The report from the "Niepełnosprawny w sieci" [*"The Disabled on the Internet"*] study involving 2,000 people with disabilities, including 500 persons with intellectual disability, confirms the optimistic image of the Internet as a tool that significantly helps improve the situation of people with disabilities and allows them to overcome various problems they face daily. The report shows that among people with intellectual disabilities, the most active Internet users are males with mild intellectual disability aged 25-40 (Raport z badania „Niepełnosprawny w sieci” 2012), i.e., the age group probably most interested in acquiring knowledge and raising qualifications not only in the traditional way but also via e-learning. It must be emphasized that people with intellectual disabilities use the Internet in a similar way healthy people do, which suggests that they are probably

able to use e-learning courses like the healthy ones. People with intellectual disabilities also treat the Internet as a source of recreation, they look for jobs, establish contacts with other disabled ones and publish their works online, though they use it to search for information somewhat less frequently than healthy people do.

To sum up, the scope of using modern information and communication technologies by people with mild intellectual disability is surprisingly broad, and their media competence is highly developed. Besides, modern information and communication technologies also allow disabled users to move on from consuming the content (like when watching TV) to more active behaviours (Plichta 2012 p. 80). The examples of such active behaviours may be making independent decisions and choices relevant to the person's preferences, or publishing their own works (photos, comments, works of art) online. Such activities also seem to be significant in the case of people with mild intellectual disability, contributing to the improvement of their mental well-being, although obviously we should remember the threats associated with using the Internet, especially for individuals with intellectual disabilities, who are susceptible to the influences of the environment. Thus, we should be particularly careful to educate intellectually disabled people about the safe use of modern information and communication technologies.

2. E-LEARNING IN EDUCATION FOR PEOPLE WITH MILD INTELLECTUAL DISABILITY

Apart from being used in leisure time, in establishing and maintaining social contacts, for pleasure and recreation, the computer and the Internet are undoubtedly good educational tools that can be used in teaching students with mild intellectual disability, especially that, as already mentioned, these people find it relatively easy to use modern information and communication technologies. A computer with an Internet connection can be used in distance learning, enabling not only healthy people but also those with mild intellectual disability to do various courses and raise their qualifications. The use of e-learning in the group of people with mild intellectual disability seems to be particularly justified, as research results confirm their positive engagement in online activity. The report from "The Disabled on the Internet" study (2006) showed that 29% participants with mild intellectual disability publish their works (e.g., graphics or music they compose) on the Internet, and even 81% participants with mild intellectual disability search for information they are interested in online. The data shows that modern information and communication technologies are extremely attractive for people with mild intellectual disability. It seems the attractiveness of the Internet and modern information technologies for intellectually disabled people is mostly associated with elements such as immediate gratification, the sense of power, the sense of agency and control, i.e., experiences that are often

absent from the daily lives of intellectually disabled people (Plichta 2012). This fact may be especially important with reference to e-learning, because when doing an e-learning course, the student has the opportunity to receive immediate feedback concerning the effects of their work, and thus, immediate gratification. Carrying out the tasks as part of e-learning courses may also give the sense of power, agency and control, whose deficit is usually experienced by people with mild intellectual disability in many areas of functioning.

The use of e-learning in education of people with mild intellectual disability seems to be justified also because they usually have limited communication and social competences, which makes their direct social contacts difficult, so they prefer indirect communication, e.g., via the Internet or in the form of short text messages. The Internet has properties that are vital for disabled people, the most important of which are properties that make it a useful tool facilitating communication and giving the disabled a chance to be treated like healthy people (Thoreau 2006), which most probably enhances their self-esteem and faith in their competences, contributing to better effects in the educational process. Therefore, it seems that teaching with the use of computers and the Internet, i.e., e-learning, may be especially important for intellectually disabled people, contributing to the development of positive feedback between faith in their own competences and educational successes (faith in one's capabilities facilitates coping with various tasks, and effective coping with tasks strengthens self-esteem). Actually, for some people, the use of the Internet can be a tool to strengthen their self-confidence and play a therapeutic role (Campbell, Cumming, Hughes 2006).

It is also worth pointing out that limiting the importance of linguistic competence in solving various tasks involving the use of modern information and communication technologies may be a factor that facilitates the experiencing of success for people with mild intellectual disability. Furthermore, virtual environment also contributes to the development of cognitive flexibility (Plichta 2013). It must be emphasized that knowing how to use the Internet, referred to as "digital agility" (Seale 2009), is very important for the way disabled people are perceived by the society. Those individuals with intellectual disabilities who know how to use modern technologies are less often perceived as helpless victims of social exclusion (Plichta 2013).

The study on long-term effects of a programme to improve the skills of using modern information and communication technologies by intellectually disabled people proved that the programme has far-reaching, positive consequences, and its participants have gained more self-confidence in helping their family members use computer technologies at home. In this context, the role of teachers in promoting the use of computers by intellectually disabled children (Plichta 2013), particularly promoting educational benefits resulting from e-learning, is of key importance.

Discussing the subject of distance learning using ICT, we must mention how these technologies influence the human brain. Research results confirm significant consequences for the neurorehabilitation and stimulation of cognitive processes in Internet users (Dylak, Ubermanowicz, Chmiel 2009). As argued by Plichta (2013), it seems very interesting to use the phenomenon of plasticity of the brain and neurogenesis, especially in performing tasks with a low level of repeatability. Specific activity activates the selected area of the brain and causes permanent alterations in it. Intensively searching for information on the Internet leads to noticeable changes in brain activity, which do not occur in people who do not use modern information technologies or use them to a little extent. We find out that “Daily exposure to high technology ... stimulates brain cells alteration and neurotransmitter release, gradually strengthening new neural pathways in our brains while weakening old ones” (Small, Vorgan, cited in Dylak 2012, p. 125). Dylak (2012) emphasizes an important property of modern information and communication technologies: a feedback loop, which is especially important for people with limited opportunities of experiencing rewards in the form of positive consequences of their activity, and thus, little chance of receiving immediate gratification. Combined with intellectually disabled students’ difficulties in obtaining quick effects of their activities, modern information and communication technologies which allow distance learning to offer much greater opportunities to experience success (Plichta 2013). For this reason, the use of e-learning in education for people with mild intellectual disability seems to be particularly important for the development and mental well-being in this group of people, though this issue is obviously complex and requires further studies and analyses.

3. THE USE OF E-LEARNING BY INTELLECTUALLY DISABLED PEOPLE AND THEIR MENTAL WELL-BEING

The analysis of relationships between mental well-being (whose key component is positive experiences, e.g. experiencing happiness) and the use of contemporary IT solutions, such as e-learning, i.e., education via modern information technologies (Łysek 2005), is an important problem, because according to research results, the benefits of positive emotions, satisfaction with life and optimism are totally measurable and objective, and happiness is like a lottery ticket: it gives you a chance for success (Czapiński 2004 p. 237). Research carried out so far clearly shows that happy people have more successes and prosper better than unhappy ones (Czapiński 2004; Porczyńska-Ciszewska 2013), which is definitely significant for the functioning of both healthy people and those with disabilities, including intellectual disabilities. Many studies show that people who frequently experience happiness enjoy more satisfying interpersonal relations, better health and longer lives, as well as higher income and professional successes, for the very reason that they are happy (Danner, Snowden, Friesen 2001;

Czapiński 2004; Pressman, Cohen 2005; Marks and Fleming 1999; Porczyńska-Ciszewska 2013).

Although in many scientific works modern information and communication technologies, especially the Internet, are criticized and blamed with various problems their users have, such as Internet addiction, weaker family and social relationships or problems with direct interpersonal communication, we need to remember that the Internet is often used to spend free time, and as we know, satisfaction with one's free time is one of the components of the general well-being index (Campbell, Converse, Rodgers 1976). Online activity also offers the opportunity to make independent choices, develop one's interests or establish social contacts that can be continued offline. Having interests and being able to carry them out, just like establishing and maintaining contacts with other people, definitely has a significant impact on human's mental well-being. Research outcomes show that benefits resulting from carrying out one's interests in the free time may be i.a., the improvement of perceived quality of life, acquiring adaptive skills (Badia, Orgaz, Verdugo, Ullan, Martinez 2011), reduction of emotional tension and stress, better mental health and better cognitive functioning, or an increase in self-confidence and self-esteem (Patterson, Pegg 2009). As mentioned before, one of the main sources of satisfaction with one's free time is social interactions and development of interpersonal relationships (Argyle 2004), which is also facilitated by modern information and communication technologies, especially in the case of intellectually disabled people. Leisure time is undoubtedly an important element of general life satisfaction (Argyle 2004), both for disabled and healthy people, and spending it in a constructive way is positively correlated with mental well-being. In addition, actively spending leisure time, correlated with well-being, proves to be a predictor of future happiness. It must also be stressed that in the case of people with intellectual disabilities, active ways of spending leisure time are not always the result of their free choice but may be determined by the decisions of their healthy caregivers, which may have a negative influence on their mental well-being. It is so because there is a negative correlation between engaging in activities the person cannot control and their mental well-being (Holder, Sehn, Coleman 2009). Furthermore, it has been confirmed empirically that engaging intellectually disabled people in so-called serious ways of spending leisure time, which may mean active and constructive use of the Internet in the form of e-learning, helps fight against the stigma and negative attitudes toward intellectually disabled persons, ensuring their visibility and respect of others (Patterson, Pegg 2009).

Due to very promising results obtained in the scale of positive engagement in online activity by people with mild intellectual disability (Plichta 2012), it is worth pointing to the concept of happiness proposed by M. Csikszentmihalyi (1990) referred to as flow experience, also called the "engagement concept". According to M. Csikszentmihalyi, flow experience means the state of maximum engagement, in which the person's skills suit the level of the task the person

is carrying out. Experiencing happiness, which M. Csikszentmihalyi calls flow experience, is the state when people feel deep satisfaction, and the mental state called flow means concentration to the point of complete immersion in the present activity. Usually it is connected with the feeling of strength, freedom, lightness and effortlessness. Someone who is experiencing happiness has the impression of controlling the situation, has no doubts or complexes, and uses their abilities to the full. The person loses the sense of time and emotional problems and feels wonderful, complete joy (Csikszentmihalyi 1997). We can say, then, that it is the state of maximum engagement in the present activity.

Research results prove that flow experience involving concentration, control and pleasure may lead to better learning effects (Yi Maggie Guo, Young K. Ro 2008). The most important conditions necessary to experience happiness in the meaning of flow, such as balance between the challenge and one's skills, feedback and transparency of the goal, are actually the elements that link optimal experiences with learning, also learning with the use of modern ICT methods.

It seems there is an analogy between acquiring knowledge and raising one's competences through e-learning courses and flow experience. The scholars who study the phenomenon of flow experience have observed that the feeling of flow occurs when the person faces clearly formulated goals which require specific behaviours of them. Usually, e-learning courses are designed exactly this way, to make the student's goals and tasks clear and precise. Moreover, a characteristic element of acting in flow is the presence of immediate feedback: when performing the task, the person knows immediately how well they are doing. This aspect also occurs in e-learning, since the student usually receives feedback after each task done as part of the course. Source literature also shows that the feeling of flow mostly appears in situations when the person's skills are used to the full, when overcoming difficulties or accepting extremely difficult challenges (Porczyńska-Ciszewska, Kraczą, Wziątek-Staśko 2018). Optimal experiences are usually characterised by a kind of balance between the requirements, challenges and capabilities of the person (Csikszentmihalyi 1997). These conditions also seem to be met in e-learning, which mostly includes activities relevant to the student's abilities, and according to M. Csikszentmihalyi (1988), such activities give us the greatest satisfaction and lead to the state of engagement, i.e., flow experience, contributing to the improvement of mental well-being.

Therefore, it seems that both healthy and intellectually disabled people who use modern distance learning technologies have more opportunities to experience the states of maximum engagement, i.e., flow experience, which according to M. Csikszentmihalyi are tantamount to experiencing happiness, and as already mentioned, mental well-being leads to prosperity (Czapiński 2004), which means that happy people fare better, are more successful, and as a result they have higher self-esteem. Therefore, we may presume that using modern information and communication technologies enabling distance learning may be positively correlated with mental well-being, both in healthy and intellectually disabled

people. Thus, it is worth stressing that apart from threats such as computer or Internet addiction, problems with interpersonal communication or alienation, modern technology undoubtedly offers excellent conditions for the transfer and popularization of knowledge with the use of distance learning techniques.

CONCLUSION

The discussion on the use of modern information and communication technologies by people with mild intellectual disability, which enables the application of e-learning methodology, i.e., distant learning based on information and telecommunication technologies, definitely refers to an important and hot problem in times dominated by the Internet and the new media. E-learning programs used in education of both healthy and disabled people are oriented at quicker and more effective education of the students who use them and the improvement of their skills in many areas of functioning. However, in the process of designing and applying e-learning education for intellectually disabled people, the qualities of these people connected with the way they use the media should be taken into consideration. These properties are i.a.: susceptibility to media manipulation, especially regarding consumption, adopting negative patterns of thinking as a result of reduced criticism, and inability to critically analyze content that is unclear, ambiguous, not transparent, multivalent or provocative (Krause 2004). Taking these properties into consideration in the process of designing and using e-learning education can definitely contribute to the development of new dynamics of opportunities for people with mild intellectual disability.

When making use of modern information and communication technologies in education for intellectually disabled people, we must not forget that technological innovations, both in communication and in the process of development, also generate a new source of potentially new threats, such as Internet addiction, social alienation, or the sense of isolation. While remembering these threats, we should also appreciate the benefits resulting from the use of modern electronic tools of communication in education for intellectually disabled people, such as the opportunities to make autonomous choices of decisions, which strengthen their self-esteem and are an important indicator of mental well-being.

Research curiosity is a motivation for the author of this study to go from theoretical discussion to empirical exploration in order to confirm the relationships between using modern electronic means of communication (such as e-learning) in education for people with mild intellectual disability and their mental well-being.

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