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The positive impact of Internet on the cognitive, psychological and social side of people's personality with disabilities

Taxiarchis Vouglanis, Athanasios Drigas

Net Media Lab Mind - Brain R&D IIT - N.C.S.R. "Demokritos" , Athens, Greece

tvouglan@hotmail.com, dr@iit.demokritos.gr

Abstract. The purpose of the present study was to indicate the positive effects of internet in the personality of the person with disabilities. Through literature review was found that internet improves the cognitive (reading, writing, internet's use), social (cooperation, friendship) and psychological skills (anxiety, stress, self-esteem). In conclusion, internet, computers' technology and e-learning are creating multiple effects in all aspects of people's personality with disabilities.

Keywords. access, equality, diversity, technology, people with special needs

Introduction

In today's society the rapid transmission of knowledge and information, interculturalism and multiculturalism, coexistence and integration of people with disabilities in everyday life's requirements is necessary (Foley & Ferri, 2012). According to Domingo (2012), 15% of the population in all over the world is facing some kind of disability in any aspect of his personality (cognitive, physical, social and emotional), while according to Mikolajewska & Mikolajewski (2011), the number of people requiring special training and experiencing some disability in areas of their personality amounting to 650 million worldwide.

Isolation and social exclusion of people with disabilities, leading to provide limited opportunities and the presence of high risk of inferiority (Brown, Belz, Corsi, & Wenig, 1993; Guess & Siegel-Causey, 1985). The report of UNESCO (2013) emphasizes and stresses that people with disabilities are facing difficulties and increased risk from being excluded from opportunities in education, working environment and information- communication in all the sectors of society.

Nowadays, science technology, computers, internet and e-learning, give several possibilities for positive change in knowledge, access services, communication, social skills and the right to work of people with disabilities (Arrigo, 2005; Chadwick, Wesson, & Fullwood, 2013; Peterson-Karlan & Parette, 2005; Ritchie & Blank, 2003).

According to Domingo (2012), internet and services are being provided, increase independence of person with disabilities in the current social and economic reality, while one of the advantages of e-learning method is the independence that provides for its user with a direct consequence of increase its self- confidence (Mikolajewska & Mikolajewski, 2011).

In the society of equality, accessibility and service's providing in all people irrespective discrimination, the term diversity indicates the power of discovery, equality and social inclusion (Barton, 1996, p. 14). More recently, the term Digital Diversity has been used to explain the diversity of equal access to science technology and information of the social levels of society's structure (World Wide Words, 1996).

In 1999, the World Wide Web Consortium issued guidelines for easy internet's access for the whole population, with a particular reference to facilitating access for people with disabilities and more specific to visual impaired (World Wide Web Consortium, 1999).

According to Zisimopoulos, Sigafos and Koutromanos (2011), one of the advantages of computer's technology and internet's use for people with disabilities is the increase of independence and support in their own abilities. Indeed, according to Mikołajewska and Mikołajewski (2011), especially in the sector of education access of people with disabilities in educational context websites has been improved significantly.

The number of people employed or working in their free time with internet has increased dramatically (Leisner et al., 2002).

Indeed, compared with the past, internet's and computers' use led to improvement of those skills that were very difficult of impossible to be performed by people with disabilities (Fichten et al., 2009). For example, as such skills referred to communication between deaf people through chat rooms, the use of upper and lower extremities from people with physical disabilities (Fichten, Asuncion, Barile, Fossey, & De Simone, 2000).

Cognitive

Regarding internet's impact on cognitive part of people's personality with disabilities, the majority of surveys showing positive effects in a number of cognitive abilities and skills such as: linguistic, writing, reading and information's detection.

Specifically, Raghavendra, Newman, Grace, and Wood (2015), in their survey in Australia, investigated the effect of social media's use in cognitive development of personality. Study's sample consisted of eight (8) persons with a mean age of 15 years old. Results of the present study showed that social media's use improved positively linguistic ability and the ability of reading.

In 2013, Bolic et al., with a sample of 102 people with hyperactivity syndrome, showed that internet's use improved people's educational activities.

The way to find websites and internet's browsing has positive effects on the cognitive abilities of the person's ability to use internet. This was examined in a survey in 2012 by Heiman and Shemesh. Using a sample of 964 students with learning disabilities they found that students who had frequent contact with internet improved their performance on knowledge of internet's use in skills such as: finding and entrance on websites, furthermore entrancing and creating messages in areas of social media.

Web browsing and knowledge of using and finding information through it, has been found to increase the ability of detecting information and knowledge in students with hearing problems (Creqq, Wozar, Wessel, & Epstein, 2002). These researchers, using as a sample students with hearing problems, aged 15-17 years old, they found that a period of exercise 90 minutes duration improved deaf students' ability to identify information on health related issues on the internet.

Apart from the information's detection ability, web browsing and the ability to use internet has been found that can improve reading ability to people with learning disabilities. Specifically, Englert, Zhao, Dunsmore, Collins and Wolbers (2007), in a survey in USA, to a

sample of 35 students aged 10 years old, from 5 selected primary schools in the region, examined the effect of using graphic skills pages to students' ability of writing. They found that students in the experimental group, through their exercise in the computer program writing skills, improved their ability in writing as to the quality (reduction of grammar and spelling errors) and as to the amount of text writing.

Practice in web browsing increases the ability to browse and search information but also and the general internet's usage by the person. Specifically, in a sample of three (3) students with moderate mental retardation from two elementary schools in Greece, investigated the effect of video's usage in access to internet and searching and downloading photos related to History lesson. It was found that the technique of learning (instructions) through video in web browsing increases the information detection ability in those persons (Zisimopoulos, Sigafos, & Koutromanos, 2011).

The use of electronic devices for the improvement of the cognitive skills of persons with disabilities does not always lead to positive entirely results. A survey from Fichten et al (2009), in a sample of 223 students with autism in Canada, examined through questionnaires students' knowledge to the following parameters: access to web pages, learning through e-learning method, use of power point, uploading and downloading files. Results showed a little positive effect of internet and learning through e-learning method, due to the fact that at the 67% of the sample of the present survey one (1) of at least their three (3) e-learning's problems remained unresolved.

In a review of the literature, Hasselbring and Glasser (2000) indicate that practice in learning skills through computer such as practice in writing environment (word), communication, searching in internet and production of electronic material has positive effect on more than three (3) million students with learning and mental disabilities. The immediate effect of this positive impact of the learning environment via a PC is the active participation of students in the learning environment according to these researchers.

The positive impact of computers' technology on cognitive skills of people with disabilities was also emphasized by Lindstrom and Hemmingsson (2014). In a comprehensive review of the literature of the period 2000- 2012 in data of 32 articles (16 of these were experimental researches), they found that cognitive skills of person with disabilities, such as writing, reading and communication improved significantly due to their practice in a learning environment via a PC.

Access to internet and its use, depends on the environment of the web site and the easy and difficulty elements that it is being enriched. This was examined in relation to blind people, where it was found that an appropriately configured environment browser on the World Wide Web facilitates the handling knowledge of blind people, but not to people with low capacity vision (Foley, 2011).

However, practicing in learning environment via a PC does not necessarily leads to improvement in all cognitive skills. This was examined in the survey of Hollins and Foley (2011), who in as sample 16 students with learning disabilities, found that skills such as locating receiver's e-mail address, locating a survey in internet while locating a book in internet for writing research were not all of them improved due to electronic environment's use.

Tablet's use seems that leads to an improvement of the cognitive skills of person with disabilities. In a survey in Kenya, to a sample of students with visual impairments, a positive impact of tablets' technology to those person's abilities related to education and practice skills was found (Foley & Masingila, 2014).

Practise via a PC leads to an improvement of knowledge and understanding related issues with autism. In the survey of Gillespie-Lynch et al (2016), to a sample of 365 persons with autism, it was found that through their training in a real electronic environment improved their understanding and knowledge of the issues associated with autism.

Psychological Part

Computer's use, internet and involvement in electronic learning environment, showing positive results in psychological indicators of people's personality with disabilities, due to the improvement of self-confidence through independence and interaction and coexistence that is provided (Mikolajewska & Mikolajewski, 2011).

In a review of the literature (collecting data from 697 articles in the period from 1987 to 2012), Chadwick, Wesson and Fullwood (2013) showed that internet's and computer's technology usage improves positively psychological dimensions of people's personality with disabilities like: self-expression, sense of security, self-provision and the reduction of inferiority.

One important parameter of person's psychology is the ability of self-determination and its connection with everyday life's needs and the general sense of satisfaction and emotional wellness. Indeed, it has been found that self-determination and person's ability to define and control its acts is an important parameter for satisfaction and emotional well-being in adulthood, especially for people with disabilities due to skills' complexity have reduced opportunities to control and the way of learning and their life (Whemeyer & Schalock, 2003). In people with disabilities, self-determination plays an important role in the successful outcome of their daily activities (Lachapelle et al., 2005).

A positive relationship between internet's use and self-determination has been found by researchers in USA. Specifically, Cook et al. (2005), in a sample of 911 persons with psychiatric difficulties and disabilities, investigated the effects of internet's use in the ability of their self-determination. Results showed a positive relationship between the frequency of internet's use and self-determination of the sample of the present study, furthermore less negative attitude toward internet generally.

Electronic learning environment (e-learning) leads to a decrease in psychological indicators of people's personality with disabilities. According to Bjecik, Obradovic and Vucetic (2012), in an electronic learning environment person's anxiety and stress is reduced, due to the asynchronous communication (e-mail) and the option to communicate with teacher or the rest of the class.

Social Part

One of the main advantages of internet's use (social networks e.g. Twitter, Facebook) and PCs, is and their positive effect on person's independence and social interaction (Hemsley, Dann, Palmer, Allan, & Balandin, 2015; Kaye, 2000). According to Peterson- Karlan and Parette (2005), computers' technology offers many perspectives and positive elements in the social field and social abilities of persons with disabilities.

Teachers' and direct family environment's expectations (parents) of people with disabilities, about the effect of internet's use in the social side of these people, have been examined in a survey in Sweden. In particular, Molin, Sorbrinq and Lofgren- Martenson, (2015), in a sample of 8 teachers and 5 parents of persons with mental disabilities, found that the parents of those persons had a positive opinion that internet's and social networking sites'

use are ways for people with mental disability to overcome their and to increase their interaction with other persons in their social surroundings.

Conflicting results about the effects of internet's use on the social side of people's personality with disabilities were found by Cheatham (2012). In particular, through literature review (sample of 6 selected articles) to a sample of people with mobility problems aged 19-64 years old, he found positive but also not significant effects on the quality of life of those persons.

The feeling of loneliness and its relationship with social networking sites' use from people with learning disabilities was examined in a survey in Israel. Specifically, Sharabi and Margalit (2011) to a sample of 716 people with learning disabilities, found a reduction to the feeling of loneliness due to social networking sites' use by the sample of the present study.

In a survey in Australia by Raghavendra, Newman, Grace and Wood (2015), was examined the effect and the impact of social networking sites' use on the social skills of 8 persons aged 15 years old with problems and disabilities in social skills. Researchers found positive effects of social networking sites' use on the social skills (interaction, communication) and in frequency of their use, pointing out the need of close and wider social environment's training of people with disabilities in the use of social networking sites.

Positive results for the effects of social networking sites' on social skills of people with disabilities, were found by Paterson and Carpenter (2015). In a sample of seven (7) people with communication and social interaction problems, they found that those people considered positive the use of communication on their social skills, with instruments such as: e-mail, areas and instruments of social networking sites and mainstream technology (ipad).

A frequently and growing instrument of social networking nowadays, is Twitter. A survey in Australia by Hemsley, Dann, Palmer, Allan and Balandin (2015) to a sample of 5 people with problems in social skills showed that the sample of the study indicated positive experiences, impressions and improvements in their everyday social skills due to this social network media's use.

According to Domingo (2012), one of the advantages of internet and the services it provides is the support and improvement of those social skills which are necessary for integration and successful participation of people with disabilities in everyday life's and society's needs and therefore for the improvement of their quality of life.

According to Foley and Ferri (2012), social networking sites gives access to people with disabilities and provide a service to the social side of their personality. The provision and service of these instruments should be seen as a global, innovative and considered in light of the discovery of new methods of its use and improvement of its quality for use by people with disabilities.

The use of a popular social networking site such as Facebook by people with disabilities has the advantage of increasing the independence and empowering these people the right of access (Shpigelman, & Gill, 2014). According to those researchers, in a sample of 172 people with disabilities, they found that the use of Facebook by these people is increased significantly, leading to the conclusion that its use increases social skills of these people.

A further more important social skill is that of interpersonal relations and developing friendship between people in the wider social environment. According to Chadwick, Wesson and Fullwood (2013), internet's use increases important aspects of the social side of people's personality with disabilities, such as the skill of creating friendship and independence-authorization of options. According to the same researchers, is recommended the creation of appropriate internet's use strategies by those people, for better improvement of the mentioned skills.

Similar results to the above study concluded the survey of Lindstrom, Ahlsten, and Hemmingsson (2011). In a sample of 215 students aged 12 years old with mobility problems, examined the effect of internet's use and practicing in digital skills outside the school environment to the interaction with peers of people with disabilities. Results showed a positive relationship between internet and peer's interaction of the sample of the present study.

Regarding the use of e-learning and its impact on social skills of people with disabilities, Drigas, Koukianakis and Papagerasimou (2006) refer that specific e- assistive technologies can help and promote the social skills of those people. Assistive technologies such as: Assistive Technology", "Design for All" και "Universal Accessibility", due to the friendly and easy to use environment help to achieve this objective.

While internet offers positive elements to improve the social side of people's personality with disabilities, however hides the possibility to create negative elements (Lough & Fisher, 2016). According to the same authors, in their survey to a sample of 28 persons aged 27 years old with Williams syndrome, it was found that the increasing use of social networking medias by those persons, although it improves their social skills such as interaction, communication and making friends, however increases the risk of victimization of these persons and the sense of safety.

Conclusion

The incorporation of digital technologies in education domain is very productive and successful, facilitates and improves the educational procedures via Mobiles [44-53], various ICTs applications [54-86], AI & STEM [87-98], and games [99-104]. Additionally the combination of ICTs with theories and models of metacognition, mindfulness, meditation and emotional intelligence cultivation [105-128] as well as with environmental factors and nutrition [40-43], accelerates and improves more over the educational practices and results.

Moreover the use of internet, computers' technology and e-learning environment enhances important aspects of people's personality with disabilities. Skills such as reading, writing, internet's use in education, self-determination, the ability of choice, improvement of quality of life, communication, interaction and making new friends are positively influenced by the internet's and computers technology's usage of people with disabilities.

Finally, anxiety and stress of people with disabilities is reduced due to independence and the ability of choice being promoted through the electronic learning environment.

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