

CONTRIBUTION OF TECHNOLOGY ENHANCED LEARNING TO THE INCLUSION OF STUDENTS WITH SPECIAL EDUCATION NEEDS

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Abstract. *Students with special educational needs (henceforth, SEN) are usually separated from traditional educational settings; thus, risk of being completely excluded from educational activities due to their physical or mental limitations is increased and access to education can be reduced significantly. Thus, a problem arises that students with SEN have restricted possibilities to participate in study process and to obtain desired qualifications together with non-disabled students; therefore, they may feel excluded from education system. The aim of the research is to evaluate how technology enhanced learning (henceforth, TEL) contributes to reducing exclusion of students with SEN. In order to achieve the aim, qualitative research methodology has been applied. Data has been selected during semi-structured interviews and analyzed by applying a qualitative content analysis. Research participants are graduate students with SEN who are currently engaging themselves in study process fostered by TEL at U.S. universities. The research has provided the following findings: TEL increases accessibility of education by eliminating social and physical barriers, enabling constant movement, and helping students with SEN cope with their impairments. TEL can be the only way for learners to complete their education. The research has not indicated that TEL can ensure inclusion. However, TEL enables students with SEN to receive qualifications and degrees in a much more convenient way.*

Keywords: *Qualitative Content Analysis, Technology Enhanced Learning, Special Education Needs, Accessibility of Education.*

Introduction

Students with SEN are often separated from traditional face-to-face educational settings by placing them to special education schools and they also are at higher risk of being completely excluded from any educational activities due to their physical or mental limitations. Even more, it has been known that such students usually have difficulties studying together with non-disabled students (Sobel & Knott, 2014). Students with SEN face challenge if they have to focus for a long period of time: “The special needs of some students leave them unable to focus for long periods of time in the classroom. They might be engaged,

intelligent and keen to learn, but they find it difficult to maintain focus during a normal class” (Sobel & Knott, 2014). In addition, students with SEN often have temper tantrums that can easily disrupt classroom activities (Sobel & Knott, 2014). Furthermore, researcher D. Sobel and W. Knott (2014) note some students with SEN may find difficulties in translating verbal information into written form; thus, this may result in poor performance in the classroom. Consequently, a problem arises that students with SEN have restricted possibilities to participate in the study process and to obtain desired qualifications together with non-disabled students; therefore, they may feel excluded from education system. Luckily, technologies have provided such students with more options and possibilities to study and complete their education together with traditional students. As a result, the aim of this paper is formulated as follows: to evaluate how TEL contributes to reducing exclusion of students with SEN from education system. The research object is a process of inclusion of students with SEN fostered by TEL. The research questions are being formulated as follows: firstly, it is important to find out how TEL contributes to inclusion processes of students with SEN, and secondly, what opportunities TEL provides students with SEN to receive education?

Methodology

Qualitative Approach: To begin with, it is necessary to mention the fact that this research will be using qualitative research approach because this methodology is considered to be more beneficial in providing more delicate information on the subject. According to scholars Corbin and Straus (2008), a qualitative research methodology has several benefits because it may enable a researcher to find out more about personal experiences of the research participants as well as provide information on how these experiences are being affected by different settings, i.e. social environment or cultural background (p. 5). A researcher Creswell (2007) agrees and adds that a qualitative research is usually done when a complex and very detailed explanation of a phenomenon is required.

Considering the fact that the aim of this research is to find out whether TEL gives students with SEN more opportunities to get desired degrees and qualifications as well as to determine how TEL helps to promote social inclusion of students with SEN, it is quite useful to use qualitative research methodology. By using such research approach, some personal experiences and opinions of students with SEN on TEL and their feelings about inclusion may be received. Also, it is necessary to mention the fact that in this case, quantitative research would not be able to provide an in-depth overview of students’ with SEN personal experiences about TEL.

Creswell (2012) points out that a data collection process consists of the following steps such as identification and selection of research participants, getting their permission to conduct a research, and finally, getting some data by interviewing research participants or observing their behavior. For this research described, a semi-structured interview has appeared to be a very useful tool for qualitative data selection. The reason why semi-structured interview is considered to be beneficial in this case is because the respondents may share some unexpected information that may be relevant to the research. In meantime, structured interview may make the respondents feel restricted. Also, considering the fact that all the respondents will be students with some kind of special needs, semi-structured interview may seem to be more delicate approach to communicating with the respondents.

However, a fact should be mentioned that there have been two types of interviews, i.e. semi-structured and structured interview, applied while gathering data. The main reason behind this is that the research participant has insisted on having a very structured interview because it has been crucial for the research participant to know everything what they may expect in order to avoid any stressful situations that may cause panic or anxiety attacks. Such request has been fulfilled because there has been no intention to put research participants into any kind of discomfort or stressful situations that would have a direct effect on their mental or physical health.

Research participants have been asked approximately ten questions regarding the following topics: TEL and inclusion. Research respondents have had to answer to 9 questions that are considered to be main ones and have formed a basis for the structured interview and 7 additional questions that have been frequently asked while performing semi-structured interviews. The main purpose of all these questions has been to get information on TEL and its benefits, promotion of inclusion, and research participants' individual experiences in TEL settings and their thoughts and feelings regarding a process of inclusion.

Due to physical limitations and boundaries, it has been impossible to perform face-to-face interviews. Consequently, it has been decided to use software that would enable communication with research participants and eliminate all the restrictions. Therefore, interviews have been done using the following online communication tool: Skype Version 7.58. All the Skype sessions have been recorded using the software called ECAMM Call Recorder for Skype. As it turns out, research participants (especially the ones who are diagnosed with autism or have social anxiety) prefer such way of taking interview because they have not been forced to encounter unfamiliar people or settings. The recorded interviews have been transcribed.

The main qualitative research method that is being used while conducting the research is qualitative content analysis. Again, having in mind the aim of the

research and its delicacy and sophistication, it has been necessary to choose a method that would allow a researcher to extract the key issues and show the main trends. A qualitative content analysis is supposed to help to analyze the transcripts in more systematic way. Additionally, it should be noted that this method is considered to be more inductive because it mainly focuses on new phenomena that emerges from qualitative data (“Inductive and deductive approaches to research”, 2017). Also, qualitative content analysis allows establishing system of main categories in a very systematic manner (Miles & Huberman, 1994). This systematic and inductive analysis of the transcripts should reveal useful information on TEL and social inclusion process.

Data will be coded in a very sophisticated manner, i.e. sentence-by-sentence, in that way, all the dominant themes will be highlighted. Coding is very important because it emphasizes the importance of dominant themes (Burton, 2000; Priest, H., Roberts, P. & L. Woods, 2003). As a result, a system of categories and presumably subcategories will be established. In next stage, connections between categories and subcategories will be established. And finally, to ensure reliability and logic behind those categories, it will be necessary to take a final look at research material, taking into consideration research aim and questions. Therefore, qualitative content analysis is considered to be quite beneficial for this research.

Research participants

To begin with, it should be noted that there have been several participant treatment principles applied such as respect for the participants and justice (Creswell, 2012). Such participant treatment has contributed ensuring ethics of the research as well.

Considering the aim of the research and the research questions, a decision upon population and sample has been made. As researcher Creswell (2012) explains, population is as a large group of people that share common features which can be easily identified. For the purpose of this research, population has been considered to be all graduate level students that have special educational needs and engage themselves into technology enhanced learning. A purposeful sampling has been applied and, to be more specific, criterion sampling which is a strategy of purposeful sampling has been performed. The reason why such type of sampling has been applied is that such type of sampling is rather useful in identification and selection of possible research participants that are familiar with, or have a lot of knowledge and experience of the phenomenon of study (Creswell & Plano Clark, 2011). A remark should be made that a sample that has been drawn from four respondents that have agreed to participate in this study voluntarily and

the selection criteria (i.e. having special educational needs, studying at graduate level, engaging in TEL) has been applicable to them.

The main characteristics of the research participants are provided in the table below:

Table 2 Characteristics of Research Participants

	Sex	Age	Method of TEL	Type of SEN
Respondent No. 1	Female	26	Online Learning	Autism, Dyslexia, Social Anxiety
Respondent No. 2	Female	25	Blended Learning	Dyslexia, Speech Disorder, Orthopedic impairment
Respondent No. 3	Male	25	Blended Learning	Asperger’s Syndrome, Social Anxiety
Respondent No. 4	Female	28	Online Learning	ADHD, Depression, Social Anxiety
Respondent No. 5	Female	25	Online Learning	Cerebral Palsy, Social Anxiety, Depression
Respondent No. 6	Male	26	Blended Learning	Orthopedic impairment, Depression
Respondent No. 7	Female	25	Online Learning	Hearing impairment

Findings

Accessibility of Education. The research has provided the following findings. It has been discovered that TEL can ensure and provide access to education. Analysis has indicated that accessibility of education can be understood in several different ways. Access to education can be granted by eliminating location and time limitations, overcoming particular social and physical barriers, or simply allowing completing studies in a way that is considered to be appropriate for individual learners.

Enabling Constant Movement. The research has revealed the fact that TEL provides access to education by simply enabling learners to travel without having to worry that some important classes will be missed or a learner will have to continue with their studies in different higher educational institution. The possibility to change location without experiencing any difficulties in proceeding with studies has been indicated by several respondents:

Respondent No. 1: *I move frequently and online learning enables me to learn no matter where I am.*

Respondent No. 2: *Ability to travel is very important to me <...> once a month, I’m going to different state to get my treatment. <...> But I don’t miss any classes <...> as long as I have internet connection.*

Respondent No. 5: *I like travelling despite it always means a lot of stress, as I have to figure out to get from A to B with the wheelchair and limited upper body/arm movement as well, and, more importantly, have to get used to a completely foreign environment very quickly. From time to time, I challenge myself to do that, as I am always striving for growth and personal development, however I felt that it wasn't a good idea in combination with studies, as studying itself was hard enough already. In addition, I would have needed personal assistance in order to manage my everyday life away from home, and would have been required to finance it on my own, which was way out of my budget.*

Respondent No. 7: *It is definitely empowering to do things. Yes, I can't hear well but that doesn't stop me. <...> I love reading and I read fast so to go through study material online, it's fun for me. I can't participate in regular classroom with normal students. But online is different. <...> Sometimes nobody even ever finds out about my disability.*

On the evidence of the quotations, it is obvious that TEL plays a very important role to increasing access to education by allowing learners to change their location. Increasing learners' mobility is a rather distinctive feature of TEL.

Eliminating Social and Physical Barriers. As the research suggests, TEL acts as an actor that eliminates any social or physical barriers. This has been mentioned by several research participants. They have emphasized the importance of TEL when it comes to coping with their emotional or physical state. TEL makes education quite accessible because it helps students with SEN cope with their impairments. To illustrate that, several examples are provided below:

Respondent No. 4: *I am closer to a computer than I am to campus. It can be challenging to go outside some days, though online feels easier, safer, and calmer than dealing with the day-to-day. It not only calmed me to be able to absorb information when I wanted, but it also helped me feel safer from things like harassment, unwanted advances, and embarrassment. Online, it's just me and the work, and it makes it much easier to focus.*

Respondent No. 2: *It increases the accessibility to education a lot. Any person with medical issues, jobs, children, or a busy lifestyle in general can access education online.*

Respondent No. 5: *Besides, through virtual learning, it is less likely to judge a book by its cover. For instance, when I meet people for the first time in person, they're almost always focused on the wheelchair and connect it with "inability" in general, rather than really getting to know me as a person, and discovering my actual abilities before making a conclusion about who I am. This is less likely to happen if you're a virtual student only. People don't see your outer appearance but the results you produce, and as a result, the grading process is more fair and inclusive, too.*

The respondents provide several reasons to prove how TEL has helped them to concentrate on their study process rather than fearing to go to classes because of their physical impairments or mental state. TEL has provided students with SEN

with opportunities and instruments to complete their education and avoid unnecessary stress.

Providing a Way to Graduate. Sometimes TEL can be the only way for a learner to complete their education. Having in mind that learners with SEN are more sensitive and sometimes requires a very sophisticated treatment, a traditional way of learning may be too problematic and stressful. Thus, TEL can be the only possibility for such students to study and become a productive part of the society.

Respondent No. 4: *Without it, I would not have graduated high school, nor gone to college. When I stopped attending high school, it was not because I didn't want to learn, it was because I physically could not bring myself to go. I could drive to the campus, but not get out of the car. TEL literally provided a way for me to graduate.*

Respondent No. 7: *I can't study together with normal students, I mean, healthy students. <...> I couldn't participate in any activities. Even hearing aid wasn't working well for me. In couple years, my hearing worsened to the point that I'm completely deaf now. I learnt sign language but that didn't help me study together with normal students. I thought I'd quit school. I felt depressed. But my friend suggested taking online classes <...> I finished high school; then did my Bachelor's and now about to finish my Master's <...> and all of that was done online.*

As demonstrated in the quotation above, in a traditional classroom, the respondent has been dealing with a lot of stress which eventually has affected their educational activities in a rather negative manner. TEL, here, plays a key role in granting access to education by satisfying all the delicate needs of the learner.

Discussion

As stated in the *Universal Declaration of Human Rights*, education is considered to be one of the fundamental human rights (UN General Assembly 1948); thus, every individual should have an access to a proper education regardless their physical and mental state or other social or cultural reasons. Unfortunately, there are many examples showing that people are being excluded from the society due to social, physical and mental conditions. Exclusion can have hazardous effect on individuals because it leaves them without any possibility to self-expression, being part of the community, and getting desired degrees and qualifications. Eventually, this may expose certain groups of people to social discrimination (UNESCO, 2005). As a result, a lot of people may get limited opportunities to study and obtain degrees and qualifications. Consequently, this may result into illiteracy and low skills in adults, especially in adults with disabilities or special educational needs; eventually, this may be the reason of poverty and unemployment (UNESCO, 2005). Thus, it can be assumed that it is important to avoid exclusion and to give equal rights to education to everyone.

As the research has indicated, sometimes traditional classroom settings are not enough to grant access to education to everyone. In this case, TEL is considered to be very effective tool for educators and students with SEN. As research participants have indicated, TEL provides them with opportunities to overcome their physical and mental state and to get the desired degrees and qualifications. However, research has indicated that hat online courses can prepare specialists like administrators or office employees who do not need any specific practical skills. In addition, it has been noted that online learning settings are not capable of providing necessary skills that are needed to prepare highly-qualified healthcare or engineering specialists because these fields of study require a huge amount of practical training which is not possible in online setting (“What are the Disadvantages of Online Schooling for Higher Education”, 2003-2017). However, a claim can be made that despite the limited opportunities to get more practical degrees and qualifications, learners willingly engage into TEL activities because it may be convenient for them or it may better suit their health condition or provide more options to fulfill their special educational needs.

Conclusions

The research has demonstrated the fact that TEL is very beneficial to students with TEL because it helps to receive education. Therefore, it can be claimed that TEL contributes to promoting inclusion of students with SEN by granting them access to receive education in the first place. TEL eliminates physical restrictions and ensures a better fulfillment of individual special educational needs. Thus, TEL definitely provides better opportunities for students with SEN to receive the desired qualifications and degrees in a much more convenient way. In this way, TEL provides many economic benefits as well. Unfortunately, the literature review has indicated some issues that there is a limited number of study fields that students who have decided to engage in online learning can choose from because online setting cannot provide any adequate practical training; thus, students with SEN have a little bit restricted opportunities to choose their career pathway if they study online.

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