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ASSESSING POSITIVE AND NEGATIVE OUTCOMES OF USING TECHNOLOGY IN CLASSROOM

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***Abstract*-Even before the pandemic of COVID-19 and the restrictions followed imposed by many governments, virtually many institutions across the globe were harnessing technology for various purposes during lessons or lectures. Modern-day schools, colleges and universities cannot function effectively without availability of technological devices such as laptops, flat-screen TVs or interactive whiteboards.**
This research empirically studies the impact of technology on education by observing two different classes, one with traditional teaching methods and the other with more innovative approaches in Uzbekistan. The conclusions drawn can be helpful for ministries and education bodies clearly outline the most progressive means of technology implemented into education.

I. INTRODUCTION

Technology has been used in education for many years, and it has always been controversial topic of debate. It has actually transformed many aspects of education, and almost replaced conventional methods of teaching and learning. Unlike in the past, schoolchildren no longer have to browse through countless books in order to acquire some more knowledge or verify information. The advent of the internet and computers in education simplified this process, as students can access any type of information using search engines such as Google, internet explorer or even Yandex (Online Business School, n.d.) . Similarly, teachers are not obliged to stand at the blackboard and explain children the concepts, seeing that they can show educational videos which are much more effective and engaging (Soliev, semanticscholar, 2016). Not only have technological advancements made the process of learning more exciting, but they have also made education possible in areas where it is a major issue (Soliev, Economic advancement of tourism industry in Uzbekistan, 2015). Even people from remote areas can gain knowledge using numerous websites and platforms such as Khan Academy, Learner Management Ecosystem of Innovative Centre or EDX. It is no longer essential for people to travel and reside in central areas just for becoming more intelligent and knowledgeable (Purdue University, 2020).

Several studies have been carried out on this topic, and all of them reached different conclusions and opinions. One research examined the use of technology in statistics learning in order to estimate changes that took place in this field (Dani-Benzvi & J Joan Garfield 2007) It has been found that technology shifted the way data is analyzed, and expanded the range of graphical and visualization techniques to provide powerful new ways to assist students in exploring and analyzing data and thinking about statistical ideas, allowing them to focus on interpretation of results and understanding concepts rather than computational mechanics, which can be done by portable, cutting-edge calculators alone (Garfield, 2014). However, technology is harnessed in many other ways as well. Researchers such as Little John, Beetham and McGill (2012) discovered that the internet had been largely used by university students and teachers to undertake the research, and the widespread use of Google in high schools was observed by Lawrence (2015).

But, which countries show considerable change in the use of technology for educational purposes? As statistics show, the U.S.A are the most advanced in terms of technology-enhanced learning. In 2013, virtually 30% of educational institutions including schools, colleges and universities used technological devices such as interactive whiteboards or computers during the lessons there, while by 2018 these figures had reached 88%. Currently, these figures are on rise, and are estimated to rocket to approximately 98% in 2025 (Instructional Technology and Digital learning, 2018). The trend for other countries such as the UK (76%), Canada (73%) and Australia (69%) is similar, though the pace at which the change has happened is ultimately different. Regarding countries where the use of technology in education is increasing at an alarming pace, Uzbekistan is one of them. In 2005, only 28% of educational institutions made use of

technological devices, while in 2019 67% did so, which is a remarkable growth (Uzeducation, 2020). So, as we can see, technology is becoming an integral part of the classroom. We, therefore, decided to study the impact it has on students' during the process of learning.

II. METHODOLOGY

As we have already mentioned, several studies examined the effects technology has on education. In one study, teachers wanted to make the process of learning mathematics more autonomous by utilizing web-support alongside with a free so-called application Geogebra. The reason for using web-support was that interaction can be added. That is to say, it was possible to integrate references to other websites which allow users to write comments and send messages, and that offer quality content, thereby enabling users to create a forum for questions. On the other hand, Geogebra was developed in Java language, which made its presence possible and made external communication more straightforward. What is more, the use of Web assisted teachers in attracting more learners and reaching wider audience. (Bernal-Rodriguez, 2011) In another experiment, indoor and outdoor tracking systems were used to identify students' behavior depending on teacher's position in the classroom. Two specialist teachers had to teach the course known as "Arduino Workshop" for a period of seven weeks, and each lesson lasted for 1.5 hours a week. The students involved in the experiment were 1st year engineering students who did not know anything about each other, but were required to apply collaborative process strategy by working in small groups of 5-6 people. Their task was to create a joystick used for playing video games. Teachers walked around the class and addressed questions students asked and gave tasks. Then, during all sessions, groups had to present their work progress, that is to say, to show their joysticks put together using hardware card based on Arduino and a sensor which would make it a useful device. The progress they made would identify how collaboratively students worked depending on position of their teacher, and tracking systems such as cameras and movement sensors will help with this process (Rawia Bdiwi, 2019)

We, however, decided to conduct an investigation comparing 2 classes and ascertain how using technology affected schoolchildren's performance. One of the classes had access to state-of-the-art devices such as computers, laptops and tablets and was almost fully computerized, as opposed to the other which used dated items such as blackboards and traditional, printed books. Thus, we observed the lessons in both classes and surveyed their students, and realized that technology had both negative and a positive effect.

Class A	Score (on average)	Class B	Score (on average)
Listening	5	Listening	3
Speaking	5	Speaking	4
Reading	4	Reading	5
Writing	3	Writing	5

Students' satisfaction with classes provided(Class A)

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	1 (fully dissatisfied)	2(dissatisfied)	3 (neutral)	4(satisfied)	5 (fully satisfied)
Listening	2%	6%	5%	40%	47%
Reading	35%	35%	12%	10%	8%
Writing	40%	40%	7%	9%	4%
Speaking	3%	5%	10%	45%	37%

Students' satisfaction with classes provided (Class B)

	1 (fully dissatisfied)	2(dissatisfied)	3 (neutral)	4(satisfied)	5 (fully satisfied)
Listening	30%	26%	30%	10%	4%
Reading	2%	3%	27%	28%	40%
Writing	1%	1%	7%	50%	41%
Speaking	32%	50%	10%	4%	4%

As can be clearly seen, students In Class A were generally good at comprehending the speech and conveying their own message, but were not competent enough at reading and writing. However, the figures for Class B were converse, as students there surpassed in reading and writing, and were less competent at listening and speaking, by getting 3 and 4 respectively for these skills. As regards the tables which relate to students' satisfaction with lessons provided, we can see that their satisfaction levels actually reflected their marks. For example, 91% of students in Class B were satisfied with the quality of writing classes, and their average score was 5 (excellent). However, listening classes did not fit their needs, so they got satisfactory marks for this language ability. This was the same with Class A.

III. RESEARCH FINDINGS

As regards the class with innovative approach to teaching, students there surpassed in speaking and listening, since they could listen to podcasts, watch interactive and instructional videos, or tutorials by native speakers which had a direct influence on their speaking and listening skills. Conversely, the class where students did not study in a digital atmosphere excelled at writing and reading. As students report, this was partially because they could read novels, fiction or non-fiction using printed books, which made the process enjoyable. That was not true of the first class, however. Regarding their writing, it was more professional and made more sense, on grounds that students in the second class could exchange opinions and ideas with each other, therefore supplementing each other's knowledge, stimulating classroom interaction and improving critical thinking of one another.

Thus, we were convinced that technology amends the process of learning by making it more engaging and encouraging students to learn more effectively. In other words, if students watch videos, access the internet and listen to educational podcasts, they get much more exhilaration from classes they attend. But, it does not directly mean that there are no possible minuses. As we have already proved, classroom interaction diminishes as the use of technology in education becomes more widespread. This, in turn, prevents students from learning actively and memorizing information well, which can lead to some misunderstandings and misconceptions in the near future.

IV. CONCLUSIONS AND RECOMMENDATIONS

All in all, it has been proved that there are both advantages and disadvantages of utilizing technology in education. As we have mentioned earlier, technology in education has made the process of learning significantly more enjoyable and time-saving for students. In addition, education is no longer an issue in remote and unknown parts of the world. In spite of this, classroom interaction started to lack in most places, and critical thinking of students has deteriorated as a result of this. Reading, which is an essential skill, has been affected by a massive use of portable devices or interactive whiteboards, not of printed books.

We would therefore like to make some suggestions. In order to amend the process of learning and fill the gaps that exist in education system as a result of massive use of technology, the balance should be achieved between the use of technology and conventional methods of teaching. In other words, most classrooms are too traditional, or, alternatively, too computerized. While the former can make the lessons tedious, the latter might result in the lack of classroom, face-to-face interaction. However, if these methods are mixed and adopted simultaneously, lessons will become both interactive and intriguing. In the long-term, this means that the largest proportion of people will be very knowledgeable and intelligent, which will reshape education systems around the world.

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