

Forum: The United Nations Educational, Scientific and Cultural Organisation (UNESCO)

Issue: Monitoring the benefits and risks of digital technologies in education and ensuring these changes reach LEDCs

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Introduction

Technology has radically changed human lifestyle all over the world. Digitalization has allowed sectors to become more productive and achieve greater benefits. However, has the digitalization of the educational sector offered the same gain? And if so, has it equally been distributed throughout rich and poor countries?

Studies conclude that learning and interactivity is shown to increase when technological tools in education are used, compared to more traditional methods. Processing tends to be faster when technology is implemented, and that does not exclude the field of education. Similarly, other indicators such as motivation, performance and self-directed behaviour are also higher compared to educational techniques that do not implement new technologies.

With this in mind, it is normal to assume that not all countries have the same capacity and deployment of such new technologies, with developing countries lagging behind. And indeed it is the fact, shown clearly by the accessibility of essential needs to carry out such educational methods which would be electricity and internet. Many countries are reaching universal levels, while Latin American countries and Asian countries aren't far behind with 98-92% of access. In the meantime, Sub-Saharan Africa offers electricity to a mere 48% of the population, with most notably Congo, only accomplishing 18%. Countries such as India have shown to also have large amounts of population without access to the Internet, with the latter having 475 million inhabitants not using the internet as of 2018 data.

This comes to show how the beneficial effects of an education surrounded by technology is not being equally implemented around the world. Underdeveloped countries are lagging behind, while richer countries are increasing their gap with the latter thanks to these disparities.

Term Definitions

EdTech

As defined by Rodriguez Segura (2020) EdTech is “any application of electrically-powered technologies in education that was not widely available to the public in previous decades”. In essence, it is any kind of device or machine that can help in producing new educational methods, different from previous existing ones.

Least Developed Countries (LECD)

According to the United Nations, Least Developed Countries (LDCs) are “low-income countries confronting severe structural impediments to sustainable development. They are highly vulnerable to economic and environmental shocks and have low levels of human assets”. LDCs have the right to access international support measures to aid in trade and help in overall development.

Information Tutoring Systems (ITS)

Field of programming that focuses on “combining research in Artificial Intelligence, Cognitive Science and Education to devise intelligent agents that can act as tutors in computer-aided-instruction”. The field focuses on making systems that can guide students by creating learning patterns among them and applying them throughout the algorithm.

Learning Poverty

Measure put out by the world bank to systematise the quantification of the learning crisis around the world. The value measures the amount of children at the end of primary students who are still below minimum reading proficiency.

Information and Communication Technology (ICT)

According to the Food and Agriculture Organisation of the United Nations, ICT is a “broader term for Information Technology (IT), which refers to all communication technologies, including the internet, wireless networks, cell phones, computers, software, middleware, video-conferencing, social networking, and other media

applications and services enabling users to access, retrieve, store, transmit, and manipulate information in a digital form”.

Background Information

The issue can mainly be divided into three main focus points. Firstly there are the positive effects of EdTech that need to be reinforced in order to get the maximum profit out of them. Secondly it is the negative repercussions these can have on the students, and lastly it is how to reduce disparities between developed countries and underdeveloped countries for the implementation of such technologies.

Positive Points for EdTech

As mentioned, EdTech is a powerful tool that allows students to become more engaged and productive in their studies by creating new experiences for students.

Alternative methods of learning are a proven way of captivating student's attention. Polling, for example, has been proved to increase student's engagement as they are able to express their opinion. Additionally, it is a tool that can be used to induce critical thinking and restructure the ways classrooms are set up to create an environment where students are forced to take part in problem solving activities.

ITS's in particular have also been proven to aid in many particular skills that are beneficial for the development of the student. Active learning, cooperative learning, creative learning, are, among others, some of these soft skills that this specific type of software successfully develops.

Negative Points for EdTech

Despite all the positives, EdTech does pose an ethical issue that needs resolving. Privacy is a controversial topic by itself, but when talking about the privacy of children, the ethical dilemma becomes larger.

Some scholars suggest that there is an inherent need in EdTech and ITS' to gather information and data in order to further improve their services and therefore, improve overall student performance. Concerns range from the amount of data collected for big data purposes, and the knowledge of the individual that such data is being collected. The main issue with this first highlighted concern lies in the lack of choice as to the

collection of data by parents, since schooling is not a voluntary initiative, but rather obligatory, and thus automatically leads to data being collected from the student without necessarily having a say.

Secondly there is the issue of anonymity, where students should have the right to remain anonymous if they choose so. With the development of big data, information that before could be considered almost impossible to lead to a specific individual can now point to him or her easily.

Third and last there is the constant data surveillance that takes place in the name of big data analytics. The need for more information in order to improve the systems leads to the possibility of this data being misused. Once again, it is important to note this data comes from children and minors and must thus be handled with the highest ethical standards.

Reducing Disparities Among Countries

EdTech is clearly a field of education that requires a certain infrastructure in order to implement it appropriately. The main two essentials are electricity and computers, however, these are not widely spread in all countries.

Some underdeveloped countries lack electricity and therefore cannot even consider installing computer systems. Other countries do have access to electricity in many schools and educational institutions, but have not deployed the necessary devices to implement such techniques.

These countries tend to have higher Learning Poverty scores, as well as lower enrollment rates. Similarly, studies have found that even with the implementation of measures that allow a digitalization of education such as the One Laptop Per Child (OLPC) initiative, if there is a lack of training to the staff of the school to transmit it to the student, the whole initiative becomes almost useless.

Countries and Organisations Involved

E9 Partnership

Bangladesh, Egypt, India, Mexico, Brazil, Nigeria, China, Indonesia, Pakistan all form the E9 partnership. These nine countries hold more than half of the population and are home to some of the largest education systems in the world. These, according to the UN, can help in developing quality education through collaboration and political will and “their voice, position and action matter considerably for the direction and success of the global education agenda”.

Chile

Chile has been hailed as one of the top introducers of ICTs into their educational system and an example to follow. There has been high student participation and there has also notably been high teacher involvement as well with professional development programs. Student computer ratios are also very high.

Jordan

Jordan is also among some of the developing states that have been praised for their successful implementation of ICTs in their educational system. In a public-private collaboration, classrooms have been furnished with state of the art equipment, and teachers have received useful instruction on how to appropriately use it and get the best out of these resources. These classrooms have also fostered innovations and experimentations.

Russia

As of 2010, Russia had the biggest project to implement ICTs in education in the world. The country has implemented policies to help teachers develop their skills with ICTs and transfer that knowledge to classrooms. Similarly, ICTs for students are introduced at a very young age (6 to 7 years old) and are maintained all throughout the curriculum.

Timeline of Events

- 1974** The Family Educational Rights and Privacy Act is signed in the United States. This law aims to protect students' privacy by, among other measures, requiring schools to get students' or parents' consent to release their academic information.
- 2006** One Laptop Per Child (OLPC) initiative is launched. It aims to furnish each student in the world with a laptop, by producing their very own ones which are cheap to use and distribute. Additionally, they take care of program design, teacher training and technical support.
- 2007** Khan Academy was founded. Today, 70 million students reportedly use the platform in order to get additional information on their studies.
- 2015** The ICT Transforming Education in Africa project is launched, and aims to develop African countries through the use of ICT in education. They look to achieve digital transformation in the field of education through the implementation of ICTs, as well as training teachers to improve their competences on such types of technologies.
- 23rd-25th of May 2015** The International Conference on ICT and Post-2015 Education is held. As defined by UNESCO, the Conference "seeks to create an interface between education and ICT sectors to debate on how ICT can be leveraged at scale to support the achievement of post-2015 education targets. The Conference outputs will include a Declaration to provide Member States with policy recommendations

about how to harness the power of ICT to address current educational challenges and to ensure equitable quality education and lifelong opportunities for all”.

16th-18th May of 2019

The International Conference on Artificial Intelligence and Education is held in Beijing. Stakeholders are able to exchange information on the latest trends in AI and how the trends are shaping education and learning.

March 2020

The outbreak of the COVID-19 pandemic disrupts all previous models of education and forces classes to move to a distance learning format. UNESCO offers guidance on how to correctly undergo such a format as well as informing teachers on the issues that might arise from students being at home. Workshops were put in place as well in order to help with this change.

2020-2023

UNESCO launches Technology-enabled Open Schools for All initiative which aims “to build technology-enabled crisis-resilient school systems that will connect school-based and home-based learning, to ensure the continuity and quality of learning no matter under normal or crises situations”. The main implementation is in Egypt, Ethiopia and Ghana and has the financial backing of large transnational corporations such as Huawei.

Relevant UN Treaties/Resolutions

Qingdao Declaration (2015)

The Qingdao Declaration on Information and Communication Technologies (ICT) in education was approved at the conclusion of the conference on ICT for the 2030 Education Agenda held in Qingdao, China.

The Declaration outlines how technology can be used to achieve educational targets for equity, access, quality and lifelong learning in the Sustainable Development Goals (SDGs) that will be used to coordinate international development for the next 15 years.

Beijing Consensus on Artificial Intelligence and Education (2019)

The Beijing Consensus is the first document to offer guidance as to how to best harness the power of Artificial Intelligence in order to apply it to the field of education and reach the Education 2030 goals set by the United Nations.

According to UNESCO: “the Consensus states that the systematic integration of AI in education has the potential to address some of the biggest challenges in education today, innovate teaching and learning practices, and ultimately accelerate the progress towards SDG 4¹.

¹ Sustainable Development Goal Number 4. The Sustainable Development Goals are a set of objectives the UN has set in order to “promote prosperity while protecting the planet”. SDG 4 looks to implement Quality Education.

Previous Attempts to Solve the Issue

One Laptop Per Child (OLPD)

One Laptop Per Child is an initiative that looks to furnish each child with a computer in order to achieve a more digitised education, thus solving one of the main issues which is lack of access to hardware.

Besides designing cost effective computers and distributing them, OLPD also creates software that adapts to each region's needs and educational characteristics, helping in a more effective implementation. Then it also offers teacher training, which helps address competency issues and make the tools available to the students as useful as possible. Lastly, their third field of focus is technical support, to ensure the program meets the necessary standards and can ensure all children can follow the courses properly.

Technology-enabled Open Schools for All

This UNESCO propelled initiative looks to guide legislators in African countries to develop a school system project "to design, pilot test, and scale up Technology-enabled Open School Systems".

The main objective is to rely on technology in order to make the education system in these underdeveloped countries crisis resilient by "connecting school-based and home-based learning". The project is divided into three stages: the design of the system, the support of the building of the system and lastly the testing and scaling of the program.

Children's Online Privacy Protection Rule (COPPA) - USA

This legislation was passed in the United States in 2000 and revised in 2013 in response to an increased number of data collection towards children and directed marketing strategies.

The act obliges corporations to incorporate a detailed privacy policy that describes the information it collects from users, as well as requiring parental consent of children under 13 which can be verifiable. Additionally, it allows the possibility to revoke the acceptance of privacy contracts, as well as deleting the gathered information.

Possible Solutions

Transparency in Data Collection Software and Information Usage

As seen, privacy concerns are the main issue with the implementation of EdTech, ICTs and ITSs in the classroom. With new technologies and big data constantly improving, some data gathering which before was considered to be insufficient to violate someone's anonymity is now capable of pinpointing the exact individual. This poses concerns to parents and students on how the data they gather over their children and themselves can be used.

For that, it is then proposed to increase transparency in EdTech platforms and ICT programs that have the capability to gather data. Users could have the right to know what the exact information these companies have on them, how they got it, what they are doing with it, and how they will use it. Limitations to what can be done with such information can also be put in place to protect the consumer of the educational product.

With this in mind, it is important to note that despite this solution, if someone does not agree with the specific privacy measures that are taken by their educational provider, there is little room to actual free choice since, as mentioned, education is an obligation, and thus, leaves ethical concerns as to whether a student can truly renounce the use of such technologies.

International EdTech Essential Implementation Plans

Overall, in order to be able to implement EdTech into the educational system, two basics must first be covered; the access to electricity and the access to internet and hardware. Without these basic measures, no advance can be made in the field if none of these are covered first.

From there, international organizations and private organizations need to create programs that help in developing proficiency with these devices of both students and teachers, and from there look for the most effective pedagogical implementations through expert committees.

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