PROCEEDINGS ARTICLE

Impact of Digital Technology on Teaching Practices and Process

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ABSTRACT

Schools, teachers and students are quickly moving from physical settings to online settings and using technologies for teaching and learning under extraordinary circumstances such as COVID-19. Although the implementation of technology in education has been around for the past decade, many designers and teachers are at a loss in identifying the best practices and quick solutions to address immediate teaching and learning needs. While embracing online and digital technology as a benefit for both students and teachers, there is an evolving change in the models of learning, and it is necessary to explore these challenges to ensure that long-term sustainability of the system is achieved. This article addresses the current challenges related to increased online studies through digital platforms. It will offer a focused response towards a teaching-practice perspective article on the impact of teaching and learning with mobile technology. This article hopes to shed light on the role of policymakers in the introduction of digital technology in education to facilitate achieving the full potential of technology in education. In the end, this article excels in its intention to offer ground on the application of technology in secondary education by offering concrete evidence to support its hypothesis.

1. INTRODUCTION

In their article, Montrieux et al. (2015) carried out a qualitative explorative study on the introduction of tablet devices in secondary schools [1]. They acknowledge that integration of digital technology has been going on for the last decade in a case study on a secondary school that implemented tablet devices since 2012 [1]. The researchers explore the impact of the introduction of tablets to the classroom setting and the consequences it had on the teaching practices. The second area explored is the perception of both teachers and students towards the new change in the learning practices and how these new conditions support current teaching and learning practices [1].

From the study, two categories of teachers emerge, behaviorist teachers and constructivist teachers. Constructivist teachers take innovative approaches to teaching and learning practices to shift from a teacher-centered approach to a leaning-centered approach that has technological elements at its core [2]. On the other side of the spectrum are behaviorist teachers who view technological devices as instruments that offer functional improvements to the process of learning [1]. The article goes further to explore the perception of students in the implementation of digital technology in learning processes. Montrieux et al. (2015) have coined that younger students were more flexible to the changes made in the learning process and study practices such as browsing the internet and use of multimedia content compared to the older students [1].

The reason why this article is chosen is that it offers new perspectives on the role of learning. Understanding the role of teachers and students in the process of learning is necessary, as incorporating both parties to the process of digital learning. This article offers knowledge going beyond the sales perspectives that most researchers do and goes beyond students to differentiate teaching with pedagogical devices in a

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unique study group involving students from secondary school [1]. The success of technology on students has been coined by several researchers.

While all offer valid arguments in the repurposing of mobile technology as pedagogical devices in the presentation of knowledge, they focus on either student or teacher perspectives, and none investigates both teachers and students in an exploratory study. Teachers and students are distinct groups and offer different consequences to the process of learning, but most researchers do not give enough weight to both groups in a similar setting, offering a niche in the knowledge that this article fulfills successfully.

2. TEACHING STRATEGIES AND TECHNOLOGIES

To understand the transformation of technology-enhanced learning approaches, it is essential to look at specific frameworks that promote the adaptation of the learning process. Higgins and Simpson (2011) offered several conditions that should be fulfilled to successfully integrate technology into the classroom [3]. One of the highlighted terms is the diversity of teaching strategies [3]. In another study, the researchers suggest several teaching strategies, such as Technological Pedagogical Content Knowledge (TPACK) [1]. This model is flawed as the provision of digital devices does not necessarily guarantee success of the learning process or performance of students.

In a similar study, Mulyati (2019) uses the SAMR model to assess the implementation of technology in the teaching and learning process by English teachers [4]. Similarly, Reyna and Meier (2020) carry out a study assessing student learning through theoretical frameworks to identify training needs of digital education, assessment, and students' training and resources as implemented by teachers [5]. The results show that digital learning promotes the development of critical thinking and digital media skills [4]. However, the SAMR model still faces the same challenge as TPACK but is easier to conceptualize and materialize through guided steps similar to Welliver's instructional transformation model [6,7].

3. TEACHER'S BELIEFS AND TECHNOLOGIES

The main responsibility of teachers is to facilitate technology, and it involves integrating technology into the classroom setting. In embracing educational innovation, teachers have to look at the possible use of adaptive material, the use of new teaching approaches and the beliefs upon. For teachers to

succeed in their profession, it goes beyond the frameworks provided by the education system, to the individual attitudes of teachers towards education [8]. The belief systems that are adopted by teachers should be accompanied by actions in implementing technology. A study by Shifflet and Weilbacher (2015) shows that while educators agree that technology can be used to engage students in critical thinking and foster self-regulated abilities in learning and literacy, in real classroom practice, some perceptions do not always materialize [9]. The major belief outlined is the friction between the use of technology to replace the didactic learning process or an overhaul in the role of the teacher. Behaviorist teachers tend to hold more traditional beliefs about teaching and learning while constructivist teachers use student-centered inquiry-based methods [1].

4. LIMITATIONS

The author has an unrivaled perspective on the influence of digital technology on both teaching and learning processes. Due to the extent of this study, the research is limited to a small study group to make the hypothesis valid. This is a huge challenge as it does not offer fully applicable analytical implications that can be used as part of a framework to ensure digital technology is successfully implemented in learning processes [1]. The article offers little information on Welliver's instructional transformation model and does not offer strong points to justify it as a potential proponent to seamlessly revolutionize the teaching and learning process.

Second, the researchers strongly point out the scarcity of studies that focus on teachers' perceptions and the impact of school-level variables that may influence the adoption of technology into classes. While to some extent this may be true, it is hard to quantify what study period should be classified as short-term or long-term, as their study was after a six-month utilization period. The time factor is very important as the state of technology is changing drastically by the minute. Also, although Montrieux et al. (2015) strongly advocate for long-term research, they go ahead to use an explorative study towards the first impressions of teachers and students after implementation [1]. While this may be an expansion to existing research, the information provided should at least be backed by an over 3-year review to be termed as a long-term study.

5. IMPACT OF THE ARTICLE

Researchers are successful in making society understand the collective responsibility of both

students and policymakers in employing digital technology in learning processes, both in the pre-COVID and post-COVID world. With numerous amounts of studies implemented in this field, the pitfall is into the specificity of these studies, and this article will contribute to understanding the need for developing new teaching and learning practices. Teachers are in a tough spot as being the forebearers in embracing digital technology in learning [10]. The problem, that why some teachers are quick to implement digital technologies while others are not, has been studied for some time, but through this article, which complex dynamics involved in the process, this new field has rendered teachers as academic authors, generating ambivalence about the integration of digital technologies into courses [1]. Policymakers would take this article into account, as it portrays the deficit in teaching material which is an obstacle to the process of learning as evident in the obstinate use of devices in an instrumental way. Everyone has a collective responsibility in facilitating the success of educational innovation.

6. CONCLUSION

Based on the above analysis, digital technology is a tool that should be applied in the learning process as it fosters critical thinking, improves literacy skills, and self-regulated learning, and prepares insightful citizens of the future [9]. Technologies promote the diversity of teaching methods, and how teachers believe in technologies and how they are used to using technologies are closely related to the development of technologies in education fields. As highlighted from this response, most research articles focus on gathering perceptions of students and teachers on the introduction of digital technology in the process of learning as opposed to looking at the long-term implications on the perceptions of teaching and learning practices. This response offers a basis for future research towards the understanding of technology in education without focusing on the achieved attitudes thereafter but on the success of the system as a pedagogical tool. Applying technologies is the trend, especially under pandemic circumstances. In future research, researchers should perform follow-up studies on similar focus groups to understand these long-term implications. Also, some of the pitfalls, such as actual use of the technology in class and technological literacy of teachers and students, should be looked out for in the development of new learning and teaching practices according to the needs of this new digital age.

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