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Impact of Technology in Student's Achievement

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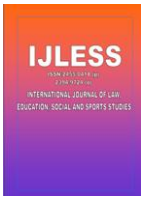

ABSTRACT
Technology has transformed with our culture. There are many benefits for students with the new advancements of technology. Teachers have seen many of these benefits with the influence of technology on their students. Many students find a sense of accomplishment when working with technology. Students are now more willing to write and work on computational skills. Then students find these tasks appealing and are able to achieve more. the effective integration of technology into classroom instruction can and will result in higher levels of student achievement. Technology has a positive impact on student learning. Technology causes students to be more engaged; thus, students often retain more information. Because of the arrival of new technologies rapidly occurring globally, technology is relevant to the students. Technology provides meaningful learning experiences. Using technology would support the active learning of students in an educational environment designed to help students achieve meaningful learning which, in turn could result in positive, cumulatively progressive gains in learning outcomes. This study should be useful to legislators, school administrators, and educators as most of our schools are turning to technology to aid and assist in learning in the classrooms. 1:1 Technology is such an asset to any school or classroom. The use of technology allows teachers to truly differentiate and tailor instruction to meet the needs of their students.

Keywords: One to one technology; Technology implementation; Student motivation; Academic achievement.

Introduction

Technology is such a big part of the world of which we live. Many of the jobs that did not require technology use in years past do require the use of technology today. Many more homes have computers than in years past and increasing numbers of people know how to use them. Technology is being used by children and adults on a daily basis by way of web surfing, texting, social networking, interactive games, and in more ways. We are an evolving technological society and in many ways have become

dependent on its use. Thus, the use of technology and teaching students have to use it has become a high priority in the public schools. Today, there is a common focus on raising student achievement while integrating technology as a tool. Policymakers and educators are renewing their commitment to programs and instructional practices that to enhance maximum effects on instruction and student outcomes. Due to the large use of technology in the world in which we live, the use of technology in teaching and learning is essential if we are to make a lasting impact on how students learn. Now, with the onset of the Common Core Standards and their emphasis on technology, the use of technology will become an even bigger priority in schools (Cristen, 2009).The keys to raising student achievement are to provide students with a solid foundation of basic skills and to motivate them to learn. Technology can help accomplish this goal. It engages students and fires their imaginations. It helps teachers stimulate young minds in ways that make a profound and lasting difference.

Background Information

Information communications and technology (ICT) literacy has profound implications for social capital whether that be in the form of educational institutions, relationships between people in society, or universal communication around the rest of the world (Mignone & Henley, 2009). In an educational setting, technology can facilitate more flexible and democratic styles of teaching and learning, provide students with more autonomy and control over their learning, and encourage the development of cognitive competencies and understanding (Buckingham , 2003). Incorporating digital technologies into the classroom can lead to profound advances in student engagement and learning which can ensure that students are keeping up with the demand of a technology based world. Instructors play an integral role in ensuring that students are engaging with technology effectively.

Links to Connectivism

While it is well understood that human interactions can promote motivation and deep learning, interacting with machines and digital artifacts can provide valuable outlets for learning as well. Researchers suggest that learning rests in diversity of opinion and maintaining connections is needed to facilitate continual learning (Wang, Chen & Anderson, 2014). If students were encouraged to share ideas through online networks and research what other students have shared about a specific topic, optimal learning would take place.

The Benefits and Requirements of a Educational Technology Initiative in students achievement

As Technology is a rather new phenomenon in the educational world, it needs to be introduced carefully and with consideration. Technology, being laptops or devices, should be seen as tools and not replacements of best practices for teaching in the classroom. Another important component of Technology is student motivation. The teacher in the classroom must understand how and why students are motivated to learn. In her study, Spears (2012) cites the work of Keller. Spears (2012, p. 8) cites the work of Keller (1987) and explains, "Attention, relevance, confidence, and satisfaction (ARCS) are the four characteristics one needs to establish in order for people to be motivated to learn." When looking to implement Technology into a classroom, educators must look closely at their student population to understand who they are working with, how their students will learn best, and how to build their confidence with technology so they will, in return, be satisfied with their learning experience, and thus become motivated to learn.

More conducive and creative learning environment required for each student, some of which include:

- Vision with support and proactive leadership from the educational system.
- Educators skilled in the use of technology for learning.
- Content standards and curriculum resources.
- Student-centered approaches to learning.

- Assessment of the effectiveness of technology for learning.
- Access to contemporary technologies, software, and telecommunications networks.
- Technical assistance for maintaining and using technology resources.
- Community partners who provide expertise, support, and real-life interactions.
- Ongoing financial support for sustained technology use.
- Policies and standards supporting new learning environments.

Physical, human, financial, and policy aspects greatly affect the success of technology use in schools, also with the advancements of technology, students are able to communicate with their teachers outside of the classroom. Students are able to ask questions through e-mail, alleviating confusion in the class. Through e-mail, students can receive one-on-one attention he or she may not receive in class due to hesitation that may be caused by other students in the class.

Areas to focus on impact of technology in students achievement

1. Mastering Fundamental Skills This section explores whether the addition of technology in the classroom has helped students master the reading, writing, and math skills that provide a foundation for future learning.
2. Becoming Proficient Users of Technology This section looks at how proficiency with technology affects students' ability to write better, express themselves more clearly, and understand presented material faster and with greater recall.
3. Preparing Students with 21st-Century Skills This section explores the effectiveness of technology in K–12 classrooms in preparing students for later achievement in college and in the workforce at large.
4. Motivating Students to Higher Levels of Achievement This section examines how technology can decrease absenteeism, lower dropout rates, and motivate more students to continue on to college.

The keys to raising student achievement are to provide students with a solid foundation of basic skills and to motivate them to learn. Technology can help accomplish this goal. It engages students and fires their imaginations. It helps teachers stimulate young minds in ways that make a profound and lasting difference..

Technology in the Classroom

Numerous studies have supported the idea that implementing technology into the classroom facilitates meaningful learning, greater use of prior knowledge, hierarchical cognitive structure, elaboration, greater depth of processing and innovative practice (Hillman, 2014). This integration shifts the focus of the learning environment to being more student-centered and allows for them to develop autonomy and control over their learning (Mo, 2011).

When introducing a technological application into a classroom, it is important to consider whether the features of that technology are suited to meet task outcomes. It is preferred that the technology is designed in such a way that it is easy to use for both the instructor and students and possesses all the features necessary to promote student learning.

Instructors' Perspectives on Technology. Educators generally have positive attitudes towards the implementation of technology into the classroom. Educators feel that when they are provided with appropriate training on professional digital competencies, they can use technological tools in the classroom to enhance the learning process for students (Kirkscey, 2012). Examples of professional competencies that educators feel should be included in training are technology-handling abilities, curriculum inclusion, technology infusion into educational activities, providing evaluative feedback, encouraging collaborative exercises with technology and responding positively to the inclusion of technology in the classroom (Guzman & Nussbaum, 2009).

Students' Perspectives on Technology. It is important to consider how students will receive technology when implementing it into into the classroom. When students perceive that the attributes of a given technology are engaging and beneficial to their learning, they are likely to adopt that technology and use it to enhance their understanding of course content (Sun, Lee, Lee & Law, 2016). Some features that make technology more appealing to students are flexibility, accessibility, ease-of-use and overall engagement. In general, studies show that students report high levels of satisfaction with the use of educational technology as it allows them to interactively engage in learning (Miller, Milholland & Gould, 2012). Students also believe that technology facilitates a greater understanding of course content, contributes to higher academic achievement and better prepares them for the technology-dependent workforce (Schindler, Burkholder, Morad & Marsh., 2017).

The Impact of Technology on Student Engagement

Numerous studies have supported the idea that overall student motivation and engagement in learning is enhanced by the implementation of instructional technology (Mo, 2011). More specifically, technology engages students behaviourally (more effort and time spent participating in learning activities); emotionally (positively impacting attitudes and interests towards learning); and cognitively (mental investment to comprehend content). Whether technology is integrated during class time or after school hours, students are given more opportunities to interact with instructors, collaborate with peers and engage themselves in the learning process. Specific technology examples that have been shown to enhance student engagement include web-conferencing software, blogs, wikis, social networking sites and digital games (Schindler et al., 2017).

The Impact of Technology on Academic Success

Incorporating the use of several technological applications allows for students to participate in higher-order thinking, enhance communication, engage in collaborative problem-solving activities and discussions, critically reflect on content and expand digital competencies (Schindler et al., 2017). Studies have compared differences in academic achievement between students who have been taught with technological enhancement (i.e. lecture recordings and podcasts) and those who been taught without it. The results demonstrated that students who learned academic content in the technology enhanced classroom outperformed those who learned the content without technology (Carle, Jaffee & Miller, 2009). Performance was greater in the intervention group in all objectively graded assessments which include papers, midterm/final exam scores and individual assignments. Other research has demonstrated that implementing technology into the classroom enhances student motivation to understand and complete tasks (Mistler-Jackson & Songer, 2000).

- Students, especially those with few advantages in life, learn basic skills—reading, writing, and arithmetic—better and faster if they have a chance to practice those skills using technology.
- Technology engages students, and as a result they spend more time on basic learning tasks than students who use a more traditional approach.
- Technology offers educators a way to individualize curriculum and customize it to the needs of individual students so all children can achieve their potential.
- Students who have the opportunity to use technology to acquire and organize information show a higher level of comprehension and a greater likelihood of using what they learn later in their lives.
- By giving students access to a broader range of resources and technologies, students can use a variety of communication media to express their ideas more clearly and powerfully.
- Technology can decrease absenteeism, lower dropout rates, and motivate more students to continue on to college.
- Students who regularly use technology take more pride in their work, have greater confidence in their abilities, and develop higher levels of self-esteem.

Barriers to Implementation

Studies have revealed that instructors believe there is insufficient time in class to deliver content and teach digital competencies to students (Kirkscey, 2012). While many instructors feel they have adequate training and are comfortable with teaching students to use technology, there is simply not enough time to do so. Other barriers to technology implementation within the classroom are limited technical ability of students, lack of funding, feelings of isolation when learning, difficulty connecting with peers, distraction with other applications and setting boundaries between class and personal life (Sun et al., 2016). However, with mindful pedagogical strategies, instructors can overcome these barriers and use technology to enhance student engagement and success.

Positive effect of technology on education

The biggest positive impact of technology on education is that of equity of access. Digital learning tools and digital technologies have broken down geographical barriers and provided access to educational resources for students no matter their socioeconomic status or geographic location.

Technology empowers students to take ownership of their learning, expanding opportunities for self-directed and personalized learning experiences. Online courses and educational apps offer flexibility, allowing students to learn at their own pace and tailor their educational journey to suit their individual needs.Because technology has transformed access to learning tools, students who previously may not have had access to these tools now also have the opportunity to build skills they'll use in college and the workforce. Battling this so-called "opportunity gap" makes personalized learning and skill development more inclusive and accessible.

Technology has impacted students' education

Technology has had a transformative impact on education. The impact of technology on student learning has revolutionized the way students engage and interact in the classroom. One of the most notable changes is the digitization of educational materials. Traditional textbooks are being replaced by interactive e-books and online resources, giving students dynamic and multimedia-rich content that can be updated as the world changes. This shift not only makes learning more engaging but also allows for more up-to-date and easily accessible information.

Adaptive learning platforms and educational apps cater to individual learning styles and paces, enabling students to progress at their own rate. This personalized approach helps address the diverse needs of students in a single classroom, fostering a more inclusive learning environment where each student can thrive.

Classroom dynamics have evolved with the introduction of interactive whiteboards, tablets, and other devices. Teachers can incorporate multimedia elements into their lessons, and collaborative tools enable students to work together on projects, fostering teamwork and communication skills that are crucial for their future success.

The impact of technology on student learning also extends beyond the classroom walls. Virtual field trips, online educational games, and video conferencing tools bring real-world experiences into the curriculum, making learning more relevant and connected to students' lives. This interconnectedness cultivates a sense of curiosity and exploration.

How technology is impacting education

Technology has profoundly impacted education, upending traditional teaching methods and reshaping today's learning landscape. As with all innovations, there are positive and negative effects of technology on education. Several key areas highlight the transformative effects of technology on education:

1. **Access to Information:** The internet has become a vast repository of information, providing students and educators with unprecedented access to a wealth of knowledge. Online resources, educational websites, and digital libraries have expanded the scope of learning beyond the confines of textbooks.
2. **Interactive and Engaging Learning:** The integration of technology has made learning more interactive and engaging. Virtual simulations, educational games, and multimedia presentations captivate students' attention, making complex concepts more accessible and enjoyable.
3. **Efficiency in Administration:** Administrative tasks within educational institutions have been streamlined through technology. Digital platforms for enrollment, grading, and communication enhance efficiency, allowing educators to focus more on teaching and students' individual needs.
4. **Skill Development for the Digital Age:** The integration of technology in education prepares students with essential skills for the digital age. They develop digital literacy, critical thinking, problem-solving, and collaboration skills that are increasingly crucial in today's workforce.
5. **Flexibility in Learning:** Online education platforms and digital resources provide flexibility in learning. Students can work through materials at their own pace and from various locations if needed, accommodating diverse schedules and learning preferences.
6. **Innovative Assessment Methods:** Technology has introduced innovative assessment methods. Digital quizzes, online assignments, and real-time feedback mechanisms offer a more dynamic and varied approach to evaluating students' understanding and progress.

As technology continues to evolve, its role in education is likely to expand, offering even more opportunities for transformative change and improvement in the learning experience.

Integration into the Curriculum

Technology can be widely integrated into several aspects of the curriculum. As discussed, numerous studies have emphasized that students and instructors hold positive views towards a technology infused curriculum. Students are able to benefit from the use of technology in most subject areas within the curriculum to enhance overall engagement and understanding of content. Instructors can integrate technology into class lessons, after-school activities, assignments and assessment methods. With the dozens of educational technology resources and applications offered, instructors can customize lesson plans that will not only facilitate higher academic achievement for students, but also prepare them for a technology-based workforce. One specific technological application that can be used in the classroom to enhance student engagement and success is Edmodo (Edmodo, 2008).

What is Edmodo? Edmodo is a technological learning platform that can be used to facilitate online discussions, share content, distribute various forms of assessment and promote student-teacher communication (Purnawarman et al., 2016). It is a user friendly application that is compatible with various electronic devices including desktops, laptops, tablets and smartphones. Edmodo provides the opportunity for students to ask questions, review content, communicate with peers and have continuous contact with their instructors after school hours. Teachers are also able to post information that may have been missed in class, send out announcements and upload academic content. Edmodo can be used for multiple subject areas to capture various curriculum expectations. It is recommended that this application be used for students who are familiar with the using technology (i.e. Intermediate-Senior divisions).

Uses in the Classroom Research suggests that there is a positive relationship between teacher immediacy and clarity, and students' cognitive interest and engagement (Mazer, 2012). The features of Edmodo

allow for students to feel a sense of connection with their instructor and fellow classmates after school hours. The application permits students to create their own profile, upload pictures and include a biography to increase the perception of social presence. It is also accessible in that students can log on from any location that has internet access and have immediate contact with their instructor and peers. Student are able to maintain social relationships with their classmates, interact on an ongoing basis, discuss topics covered in class and review course material. In essence, Edmodo establishes a sense of community among teachers and students from a distance. Achieving social presence through a technological application like Edmodo has numerous benefits for learners. Some of these benefits include supporting cognitive and affective learning objective, promoting engagement, facilitating intrinsic motivation, creating positive group interactions and enhancing self-efficacy (Aragon, 2003) Overall, students feel that Edmodo enables them to feel connected with the members of their classroom and have their learning needs met even from home (Yunkul & Cankaya, 2017). Studies have shown that students' perceptions towards Edmodo are positive as it is user friendly and facilitates effective communication and learning (Al-Said, 2015). Students also report that the application allows for them to feel connected with their instructor and peers while having their academic needs met. When analyzing the overall layout of Edmodo, users identify its striking resemblance to the social media network Facebook. Since many students in both elementary school and high school have a Facebook account, learners find the features of Edmodo relatable and easy to use (Cruz & Cruz, 2013).

Criticisms of Edmodo, Although integrating the use of technology into the curriculum has been shown to enhance student engagement and success, there are some limitations. While the majority of students report high levels of satisfaction with Edmodo, some report that the application is initially overwhelming due to its many features (Al-Said, 2015). There is also the argument that students are not given the opportunity to take breaks and temporarily disengage from their academics since the application sends frequent class notifications. Since this may result in some frustration for students, it is recommended that instructors suggest time frames for using the application after school hours.

Conclusions and Future Recommendations

As technology becomes increasingly prevalent in the education system and workforce, it is important for students to become familiarized with various digital applications. Integrating technology into the curriculum not only provides students with the opportunity to expand their skills and succeed academically, it also prepares them for the real-world upon graduation. While educational technology shifts the learning environment from being teacher-centered to student-centered, it is important that teachers carefully think through effective methods of implementation. Since there are hundreds of technological applications out there, each with distinguishing features, it is important that teachers guide students in the process of learning about these technologies to prevent them from becoming overwhelmed. It is recommended that teachers also provide continuous feedback to students throughout their experiences with using technology.Future recommendations would include developing more research pertaining to methods of effectively implementing technology into the curriculum. While this chapter has focused on the impact that technology has on student engagement and success, research could be done to understand methods educators can use to facilitatethisprocess.

References

[1]. Al-Said, K. M. (2015). Students' perceptions of Edmodo and mobile learning and their real barriers towards them. *TOJET: The Turkish Online Journal of Educational Technology*, *14*(2).

[2]. Aragon, S. R. (2003). Creating social presence in online environments. *New directions for adult and continuing education*, *2003*(100), 57-68.

[3]. Buckingham, D. (2003). Media Education: Literacy, Learning and Contemporary Culture , *Polity Press, Cambridge*

[4]. Carle, A. C., Jaffee, D., & Miller, D. (2009). Engaging college science students and changing academic achievement with technology: A quasi-experimental preliminary investigation. *Computers & Education*, *52*(2), 376-380.

[5]. Cruz, M. B., & Cruz, S. B. B. (2013). The use of internet-based social media as a tool in enhancing student's learning experiences in biological sciences. *Higher Learning Research Communications*, *3*(4), 68-80.Edmodo. (2008). Retrieved from https://partnerships.edmodo.com

[6]. Guzman, A., & Nussbaum, M. (2009). Teaching competencies for technology integration in the classroom. *Journal of computer Assisted learning*, *25*(5), 453-469.

[7]. Hillman, T. (2014). Finding space for student innovative practices with technology in the classroom. *Learning, Media and Technology*, *39*(2), 169-183

[8]. Kirkscey, R. (2012). Secondary school instructors' perspectives on the integration of information and communication technologies (ICT) with course content. *American Secondary Education*, 17-33.

[9]. Mazer, J. P. (2013). Associations among teacher communication behaviors, student interest, and engagement: A validity test. *Communication Education*, *62*(1), 86-96.

[10]. Mignone, J., & Henley, H. (2009). Impact of information and communication technology on social capital in aboriginal communities in Canada. *Journal of Information, Information and Organizations, 4*, 127-145

[11]. Miller, J. P., Milholland, E. S., & Gould, S. M. (2012). Determining the attitudes of students toward the use of a classroom response in hospitality courses. *Journal of Hospitality & Tourism Education*, *24*(2-3),73-79.

[12]. Mistler-Jackson, M., & Songer, N. B. (2000). Student motivation and Internet technology: Are students empowered to learn science? Journal of research in science teaching, 37(5), 459-479.

[13]. Mo, S. (2011). Evidence on instructional technology and student engagement in an auditing course. *Academy of Educational Leadership Journal*, *15*(4), 149.

[14]. Purnawarman, P., Susilawati, S., & Sundayana, W. (2016). The use of Edmodo in teaching writing in a blended learning setting. *Indonesian Journal of Applied Linguistics*, *5*(2), 242-252.

[15]. Schindler, L. A., Burkholder, G. J., Morad, O. A., & Marsh, C. (2017). Computer-based technology and student engagement: a critical review of the literature. *International Journal of Educational Technology in Higher Education*, *14*(1), 25.

[16]. Sun, S., Lee, P., Lee, A., & Law, R. (2016). Perception of attributes and readiness for educational technology: Hospitality management students' perspectives. *Journal of Hospitality & Tourism Education*, *28*(3), 142-154.

[17]. Wang, Z., Chen, L., & Anderson, T. (2014). A framework for interaction and cognitive engagement in connectivist learning contexts. *The International Review of Research in Open and Distributed Learning*, *15*(2). *Technology, and Organizations*, *4*, 127-145.

[18]. Yunkul, E., & Cankaya, S. (2017). Student's attitudes towards Edmodo, a social learning network: A scale development study. *Turkish Online Journal of Distance Education(TOJDE)*, *18*(2).