Proceedings of the International Conference on Global Politics and Socio-Humanities
DOI: 10.54254/2753-7048/45/20230363

Empowering Learning: A Systematic Review of Technology Use and Motivation in Education

Ao Yu[1,a,*]

[1]*Business School, The University of Edinburgh, Edinburgh, EH8 9JS, UK*
a. s2141897@ed.ac.uk
**corresponding author*

Abstract: Nowadays, integrating technology into the classroom environment is becoming more and more common, with schools worldwide using various types of technology infrastructure, such as tools and platforms. Devices and media in their teaching practices, including AI-based personalized learning modules, digital games, online learning management systems, and immersive virtual reality experiences. This paper aims to investigate the link between technology use and educational motivation by conducting an in-depth analysis of research conducted over the past decade (2013-2023) to explore the many applications of technology in education and its impact on the level of motivation shown by students. The author aims to address an underresearched but vital aspect of contemporary teaching practice and promote higher motivation and educational success. This work could represent a significant step in building future research, policy development, and practical applications in educational technology.

Keywords: Educational Technology, Educational Motivation, Teaching Practice

1. Introduction

There is a growing consensus that integrating technological tools into educational settings is an essential component of today's educational practices [1]. It is becoming more and more common for people to advocate for the incorporation of technology into the classroom setting. At the same time, as we investigate the revolutionary effect that technology has had on education, one of the primary concerns shared by teachers, parents, and policymakers is the question of how technology affects students' motivation to learn [2]. Moreover, it is becoming increasingly common for schools of all levels and in all parts of the world to use a range of different types of technological infrastructure in their teaching practices. These tools and platforms include AI-based individualized learning modules, digital games, online learning management systems, and immersive virtual reality experiences [3]. While the specific implementation of technology may vary in different settings, there is a consensus on its potential role in education.

The use of technology in education is primarily based on constructivist learning theory. The constructivism theory of learning, according to which students actively construct their understanding and knowledge via encountering new things and reflecting on those new things [4], is the primary foundation for the implementation of technology in educational settings. This theory indicates that technology helps students to interact with educational information actively, hence making it easier for them to create their knowledge. In the context of technology, this idea posits that technology

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enables students to interact with instructional content actively. According to Warschauer et al [5], it is also considered that using technology might boost students' motivation levels by making the learning process more enjoyable, participatory, and personally meaningful to them. On the other hand, the usefulness of technology in terms of motivating students and improving the learning experience they have is still up for debate. Some researchers emphasize possible downsides such as fewer interpersonal contacts, distraction, and even, in some situations, decreased motivation to study [6]. In addition, the great variety of technological tools and their uses, as well as the significant difference in learners' preparedness and preferences for technology, contribute to the complexity of properly comprehending the influence that the utilization of technical tools has on educational motivation.

My goal in conducting this systematic review is to investigate the connection between the use of technology and educational motivation. I will explore the many applications of technology in education and the influence that it has on the level of motivation displayed by students by conducting in-depth analyses of research that was conducted over the course of the last decade (2013-2023). The study's overarching questions are as follows:

How does the incorporation of technology into the classroom setting influence the level of motivation exhibited by the students?

How has education research framed the issue of technology use about student motivation?

In the following sections, I will address the significance of knowing the function that technology plays in fostering a motivation to learn in educational settings, as well as provide an overview of the methodology that will be used to carry out the systematic review. Before exploring the methods of this systematic review, I will investigate how the connection between the use of technology in educational settings and student motivation to learn may be attained by considering several different learning behaviors, cognitivism and constructivism.

2. Theoretical Framework

To have a good grasp on how educational practices and technology interact with one another requires an in-depth study of the theoretical frameworks that underpin the learning process. Behaviorism, constructivism, and cognitivism are the three educational perspectives that have had a significant impact.

2.1. Behaviorism Learning Theory

As a school of thought within psychology, behaviorism contends that learning is nothing more than a chain of reactions to stimuli from the outside world. It proposes that behavior is capable of being investigated in an organized and observable manner without taking into consideration the subject's interior mental processes [7]. In addition, the behaviorist viewpoint holds that learning may be defined as a change in an individual's observable behavior and that motivation is the reaction to an outside stimulus [8]. According to this theory, using technology in education may inspire students by providing them with quick feedback or prizes, reinforcing the behaviors associated with learning.

2.2. Constructivism Learning Theories

Constructivism considers learning to be a process in which students actively develop their understanding and knowledge by reflecting on their experiences and drawing connections between those experiences and prior knowledge [4]. According to this perspective, motivation is an inside process that originates from the learner's need to make meaning of the experiences that they have had. Therefore, technological tools serve as channels that stimulate the learners' curiosity, autonomy, and active involvement in the learning process, thereby increasing the learners' intrinsic motivation. This is accomplished through actively engaging the learners in the learning process.

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2.3. Cognitivism Learning Theory

Another foundational perspective in the study of learning is known as cognitivism. This theory proposes that the act of learning is an internal process that involves digesting information, remembering it, and finding solutions to problems [9]. It emphasizes the learner's mental processes, such as thinking, memory, knowing, and problem-solving, among others. When it comes to the subject of motivation, cognitivism emphasizes "intrinsic" factors like personal happiness, curiosity, and the need to find solutions to difficulties. According to this point of view, technology functions as a tool that makes the processing and organization of information easier. This, in turn, has the ability to boost the motivation of learners by making the process of learning more effective and requiring less cognitive effort from them.

Each theoretical lens presents a unique viewpoint on how technological advancements might influence learners' motivation levels. The behavioral approach known as behaviorism may propose that modern technology might act as a medium for delivering incentives, reinforcing and facilitating the development of desirable academic behaviors. Constructivism, on the other hand, might claim that technology gives students more freedom to design their own knowledge and, as a result, could boost students' intrinsic drive. In the meanwhile, cognitivism may suggest that technology, as a tool to help information processing, might make learning less demanding, hence improving learners' motivation to learn. This is because technology is a tool to facilitate information processing.

In this systematic review, these theories will be used as a framework for analyzing the role that technology plays in education, particularly in terms of its impact on student's levels of motivation to learn. It will serve as a lens for analyzing research that will help to highlight the possible benefits and limitations of the use of technology in education from a behaviorist, constructivist, and cognitivist perspective, respectively. Not only that, but the discussed theories will also help to categorize the literature and dissect the intricate relationship between the use of technology and the motivation to learn.

3. Methods

In order to carry out this systematic review and achieve the goals that have been set for the research, I intend to use a methodologically rigorous and exacting approach for the collection, extraction, and synthesis of the data. The following provides an overview of the strategy that will be applied:

3.1. Data Source

The academic literature that was published between the years 2013 and 2023 will serve as the primary source of data for this systematic review. This study will concentrate on research articles that have been published in journals that have been peer-reviewed, as well as conference proceedings and academic publications that explore the nexus between the use of technology and motivation in educational settings. A variety of electronic databases are going to be searched in order to guarantee that a complete comprehension of the study landscape is achieved. ERIC, PsycINFO, Google Scholar, JSTOR, and the SpringerLink eLibrary are going to be some of the databases that are included in this collection. In addition, searches by hand will be conducted through the reference lists of the papers that were included in order to locate any new research that is pertinent.

3.2. Search Strategy

An exhaustive search of the existing literature will be conducted with the use of a mix of keywords and index phrases pertaining to the application of technology in educational settings and in the pursuit of personal motivation. Examples of search phrases will include things like "technology in education,"

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"educational technology," "eLearning," "digital learning," "virtual learning," "Technology Enhanced Learning (TEL)" as well as "educational motivation," "student motivation," and "motivation in learning." In order to narrow the scope of the search, we will make use of Boolean operators.

3.3. Criteria for Inclusion and Exclusion

In order to be considered for inclusion in the review, individual studies will need to conform to a set of criteria.

These will include the following: (a) The study analyses the connection between the application of technology in educational settings and levels of motivation. (b) The research paper was initially published sometime between 2013 and 2023. (c) The research was written in the English language. (d) The research follows a methodologically sound approach, which may be qualitative, quantitative, or mixed methods. The following will be considered for exclusion from the study pool: (a) studies that do not directly address the research issue, (b) grey literature, and (c) studies that have poor methodological quality.

3.4. Literature Selection

The publications that have been identified will have their titles and abstracts examined in the beginning of the study selection process to assess whether or not they are relevant. After that, the inclusion and exclusion criteria will be applied to the complete texts of any possible articles in order to determine their eligibility.

3.5. Data Extraction

For each study that was included in the analysis, pertinent information will be extracted. This information will include study characteristics (such as authors, year of publication, and geographical location), population characteristics, type of technology utilized, theoretical framework, research methods, main findings, and implications for practice.

3.6. Data Synthesis

The data that was extracted will be synthesized in the form of a narrative, focusing on the ways in which technology has been used in educational settings and how these uses of technology have influenced motivation by the behavioral, constructivist, and cognitivist theories of learning.

3.7. Data Analysis

The data that was extracted will be analyzed to determine whether or not there is a correlation between the use of technology in educational settings and student motivation. In order to locate and examine recurring themes within the data, a method known as thematic analysis will be utilized.

3.8. Limitations

The systematic review is subject to certain limitations. Firstly, the review will only include studies published in English and within the specified ten-year timeframe, which may result in overlooking significant studies conducted in other languages or outside this period. Secondly, the focus on peer-reviewed literature excludes grey literature, which could potentially offer valuable insights into the research question. Thirdly, the nature of systematic reviews means that only published and accessible research is reviewed. Thus, the 'file drawer problem,' where studies with non-significant results are less likely to be published, may bias the findings [10]. Lastly, despite rigorous efforts to ensure

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objectivity, inherent biases in the selection and interpretation of studies could influence the review's outcomes. These limitations will be taken into account when interpreting and generalizing the review's findings.

4. Conclusion

This systematic review, positioned within the nexus of technology and motivation in education, aims to address an understudied yet crucial aspect of contemporary pedagogical practice. Leveraging insights from behaviorism, constructivism, and cognitivism learning theories, it offers a rigorous approach to understanding the interaction between technology and student motivation. However, the results should be interpreted carefully due to the inherent limitations of systematic reviews, such as language and timeframe restrictions, a focus on published peer-reviewed studies, and potential interpretation biases. Nevertheless, this work could represent an instrumental step forward in framing future research, policy-making, and practical applications in educational technology. The ultimate goal remains to harness technology's full potential to create empowering, engaging, and effective learning environments that foster heightened motivation and academic success.

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