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# Impact of Technology on Secondary School Students' Academic Achievement

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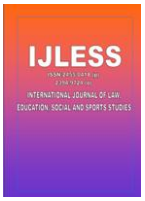


**ABSTRACT**

The theoretical article investigates the impact of technology on students in secondary school, focusing on how digital tools such as Learning Management Systems (LMS), virtual classrooms, and mobile applications have affected teaching and learning practices. It stresses how technology facilitates personalized learning, fosters creativity, encourages cooperation, and improves critical thinking skills. While this conceptual paper acknowledges the positive effects viz., increased student engagement and enhanced overall academic achievement and it also addresses the confront , including the digital divide and the negative impact of excessive technology utilization among students' focus and academic output. Government initiatives viz., National Mission on Education through ICT and the Digital India campaigns have been involved in endorsing technology in education, but there is a need for impartial integration to exploit its benefits for students' learning upshots.

Keywords: Technology, Integration, Academic Achievement, Secondary School, Student.

## Introduction

It has changed the education industry by revolutionizing its use of technologies and where one accesses quality education to better result learning outcomes. Learning now at CD, Internet and educational software available is interesting, interactive and personalized. But still, a few others need to be conquered like the digital divide, technical issues, cyber security issues, etc. Despite all these constraints, technology makes it feasible for India's education system.

The introduction of technology to the various industries has changed the education scenario, especially as far as secondary education is concerned. Technology in education can be defined as the employment of digital tools and resources-including computers, tablets, interactive whiteboards, instructional software and online platforms-to support teaching and learning. It's an education that extends from 12 years to 18 years, during which the development of the student's characters is made and they undergo learning changes. The importance of technology in secondary education is enormous:

personalized learning, encouraged creativity, made possible collaborative learning environments and opened up a vast library of material that was once difficult to access. However, it still has its part in bridging the traditional ways of teaching with modern learning. In fact, such situations make the students active participants in the curriculum process by using multimedia applications, simulations and all other kinds of interactive learning tools.

Along with this, the enhancement of technology also improves critical thinking and problem solving skills, as well as information literacy-three crucial competencies of the 21st-century learner. The adoption of technology in schools, as far as India is concerned, is picking up steam in recent years. The government of India has conceived myriad schemes such as 'Digital India' campaign and a mission on education through technology/ICT. Initiated measures have ushered in many great changes in providing technology-enabled tools to secondary schools-mostly among rural schools (Rao, 2015)-with a view to reducing the digital divide and increasing access as well as equity in a quality educational environment.

Technological combination in education has thus made a turn for most ways in which they learn and leave. Indian government has introduced quite a number of initiatives promoting the use of technology in educational institutions, one of which is the National Mission on Education through Information and Communication Technology (NMEICT, 2011). This conceptual paper discusses how secondary school-going pupils learn within the Indian context.

**TECHNOLOGIES UTILIZED FOR LEARNING AT THE SECONDARY LEVEL:**

- **Learning Management Systems (LMS):** Platforms namely Moodle, Blackboard and Canvas provide a centralized learning environment for students and teachers.
- **Online instructional tools:** Websites namely Khan Academy, Coursera and edX offer a wide range of instructional tools, including video lectures, interactive simulations and online courses.
- **Virtual & Augmented Reality (VR/AR):** VR/AR technologies are being used to offer immersive learning experiences in areas like science, history and language arts.
- **Collaboration Tools:** Tools like Google Docs, Microsoft Teams and Trello promote cooperation and communication among students and professors.
- **Online Quizzing and Assessment Tools:** Tools like Kahoot, Quizizz and Quizlet enable interactive quizzing and assessment experiences for students.
- **Virtual Classrooms:** Platforms like Zoom, Google Meet and Skype provide virtual classrooms, allowing students to participate in remote learning activities.
- **3D Printing and Modeling:** 3D printing and modeling technologies are being used to offer interactive learning experiences in areas like science, technology, engineering and mathematics (STEM).
- **Mobile Apps:** Educational apps like Duolingo, Quizlet and Photomath provide engaging learning experiences for pupils.
- **Gamification Platforms:** Platforms like Classcraft and ClassDojo use game design aspects to engage students and promote learning.
- **Artificial Intelligence (AI) based Learning Systems:** AI-based systems like DreamBox and Curriculum Associates deliver tailored learning experiences for pupils.

**ACADEMIC ACHIEVEMENT AND ITS RELATIONSHIP WITH TECHNOLOGY:**

According to some recent research, the integration of technology improves academic performance. Megregian (2023) is one example of this, since he discovered that incorporating innovative digital tools such as Google Earth and Jamboard greatly thrilled pupils and enhanced their learning outcomes. Identify behavioral, cognitive and emotional engagement as outcomes and value

the integration of technology in enhancing student experience. Another research conducted by Pate (2019) referred to the motivational and teacher-student connections impacted positively by digital learning, yet the research did not yield any substantial gender-based differences in achievement levels among students, as it highlighted, the potential that digital learning has to improve students' motivation and engagement.

A large-scale study done in Texas by Weathersbee (2008) revealed many spaces of technology integration that advanced academic performance in reading, mathematics and science. The results of the study necessitated the targeted integration of the technology that would enhance learning outcomes for the students.

Overuse of technology may have a negative impact on academic performance, as demonstrated by Rao and Rao (2017), who discovered that excessive use of technology affected attention span, critical thinking ability, and even academic achievement. In a separate study, Singh and Singh (2018) discovered that technology addiction leads to decreased academic performance and increased stress levels.

Academic achievement as far as secondary school is concerned is a measure of students' performance in their studies, usually measured with reference to grades, test scores and other academic indicators. It would thus represent the extent to which the students learned the knowledge and skills as prescribed in the term learning.

**INDIAN GOVERNMENT INITIATIVES**

India has initiated lots of schemes and actions towards popularizing technology in education. One of the schemes has been developed by the National Mission on Education through Information and Communication Technology or NMEICT. This scheme envisages harnessing the potential the information and communication technology has in further improving the quality of education in India (MHRD, 2011). Digital India is aimed towards increasing digital literacy and digital infrastructure in India (MeitY, 2015).

**National Mission on Education through Information and Communication Technology (NMEICT)**

- **Objective:** To leverage the potential of ICT to augment the quality of education in India.
- **Initiatives:** It has initiated numerous projects, including the development of e-content, online courses and virtual labs.
- **Outcomes:** It NMEICT has resulted in the creation of a large repository of e-content, which is accessible to students and teachers across the country.

**Digital India Initiative**

**Objective:** To promote digital literacy and digital infrastructure in India.

**Initiatives:** The Digital India initiative includes several projects, namely the creation of digital infrastructure, promotion of digital literacy and development of digital services.

**Outcomes:** The Digital India initiative has resulted in the creation of a robust digital infrastructure, which has enabled the delivery of various digital services to citizens.

**Other Initiatives**

- **SWAYAM:** It is a huge open online course (MOOC) platform that provides access to high-quality educational resources.
- **National Digital Literacy Mission (NDLM):** It aims to endorse digital literacy among citizens, particularly in rural and underserved areas.

- **E-PATHSHALA:** It is a mobile app that provides access to digital educational resources, including e-books, audio and video materials.

The Indian government has launched several schemes in this regard to promote the acceptance of technology in education. These projects aim to improve the quality of education and enhance digital literacy among its citizens, creating strong digital infrastructure. There are certain issues, though. Still, these projects have the potential to bring about a veritable change in the education sector of India.

**CONCLUSION**

Technology has had both positive and negative impacts on the academic progression of secondary school students in India. While technology is usually beneficial in promoting students' attendance, motivation and accomplishment in schools, too much technology used would reduce their attention span, deteriorate critical analysis skills and lower the academic performance of students. The Government of India has launched several programs to make use of technology in education and this has raised the need to guarantee the actual use of technology as a catalyst for enhancing academic attainment and facilitating digital literacy.

**References:**

[1]. Kumar, A., & Kumar, P. (2018). Impact of technology on academic achievement of secondary school students. Journal of Educational Technology, 14(2), 1-12.

[2]. Megregian, A. (2023). The effects of technology integration on academic performance and engagement of third grade social studies students: A mixed methods study. (Doctoral Dissertation, University of South Carolina). Retrieved from https://scholarcommons.sc.edu/etd/7482

[3]. MeitY. (2015). Digital India. Ministry of Electronics and Information Technology, Government of India.

[4]. MHRD. (2011). National Mission on Education through Information and Communication Technology (NMEICT). Ministry of Human Resource Development, Government of India.

[5]. Pate, S. R. (2019). Effect of digital learning on academic achievement of secondary school students. https://www.researchgate.net/publication/339898989

[6]. Rao, K., & Rao, S. (2017). Excessive use of technology and its impact on academic achievement of secondary school students. Journal of Educational Technology, 13(1), 1-10.

[7]. Sharma, R., & Gulati, S. (2019). Technology-based learning environments and academic achievement of secondary school students. Journal of Educational Research, 12(1), 1-15.

[8]. Singh, H., & Singh, S. (2018). Technology addiction and its impact on academic achievement of secondary school students. Journal of Educational Research, 11(2), 1-12.

[9]. Weathersbee, J. C. (2008). Impact of technology integration in public schools on academic performance of Texas school children. *Texas State University*.