



Review Article

Examining The Positive and Negative Impact of Modern Technologies on Education in The Digital Age

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Abstract	Manuscript Information
<p>This study examines the positive and negative impacts of modern technologies, including digital tools, e-learning platforms, and artificial intelligence, on education in the digital age. It explores how these technologies enhance teaching and learning outcomes while identifying the challenges they pose. The research involved 200 participants from diverse educational backgrounds, including students, teachers, and administrators, who provided quantitative data on the effects of technology in educational settings. The findings reveal that modern technologies have significantly improved student engagement, learning outcomes, and access to global resources. However, concerns such as increased screen time, digital divides, loss of face-to-face interaction, and overdependence on technology were identified as major negative consequences. Additionally, the study highlights that while modern technologies have improved student engagement and educational equity, issues like technology accessibility and support for special needs students remain areas for further improvement.</p>	<ul style="list-style-type: none"> ▪ ISSN No: 2583-7397 ▪ Received: 09-09-2024 ▪ Accepted: 15-10-2024 ▪ Published: 24-12-2024 ▪ IJCRM:3(6); 2024: 137-143 ▪ ©2024, All Rights Reserved ▪ Plagiarism Checked: Yes ▪ Peer Review Process: Yes <p>How to Cite this Manuscript</p> <p>Chinmoy Mani. Examining The Positive and Negative Impact of Modern Technologies on Education in The Digital Age. International Journal of Contemporary Research in Multidisciplinary.2024; 3(6): 137-143.</p>

KEYWORDS: Modern Technologies, Digital Age, Education Impact, Positive and Negative Effects, Technology in Education

1. INTRODUCTION

The integration of modern technologies, such as digital tools, e-learning platforms, and artificial intelligence, has revolutionized education in the digital age. While these innovations offer numerous benefits, they also present challenges that impact teaching, learning outcomes, and student engagement.

1.1. Modern Technology

We all know that age creates habits, but when we use this real fact to our advantage and make sure the child is using technology to cheat to get new items to add to his record, it becomes beneficial. Examine the device's time type: the amount of time that passes when the hardware is taken into consideration while

focusing on the surrounding ideas changes. The time should be well synchronized with the classroom plot. These days, a few new technologies are being used in address rooms, including podcasting, web-based instruction, classified web journals and wikis, person-to-person contact, user-friendly whiteboards, and cell equipment. There are several methods to participate in recent innovations. New technology simplifies distance dominance. It also encourages faster feedback and collaborative efforts among large groups. Podcasting and websites allow undergrads to find out and participate in conversations after dropping classrooms due to contamination. Classification websites and wikis expand the conversation and let students to participate outside the classroom. Intelligent whiteboards make teaching easier,

offering students more visible guidance and professors more time to introduce examples, while cell phones allow speakers to quickly share material with students. Online education may be a short-term change. Today, natural and societal boundaries seem to constrain people less. Searchers and divulgers are needed. Modern homerooms are no longer limited to old universities' four walls due to time. Age-based preparation is the long-term approach.

1.2. Modern Technologies Strategies

Technology procedures should document concocting assumptions and improve progress measurements. Task-driven strategies ensure that projects meet the company's needs and goals. The main goal of creating a technology plan is to ensure that the business strategy is consistently completed during the period of speculation. Business-compliant measure. The success period strategy is integrated into many of the company's business systems, not to add to its effort and creativity but to benefit from it, according to some experts. Realistic structures provide insights into existing and future company venture processes, confirm business project plans on multiple boundaries, identify gaps, and create age roadmaps and budgets. In information tech, data generation and strategic design are crucial. The practicality of strategy alignment helps company strategy in each shape.

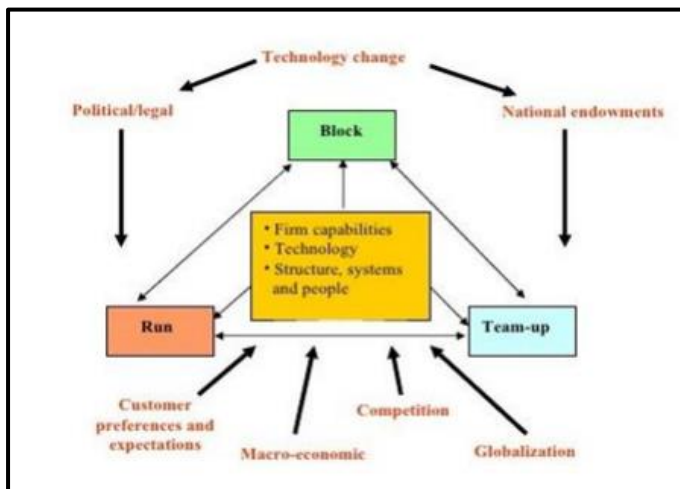


Figure 1: Modern technologies strategies

1.3. Positive And Negative Impact of Education

The idea of formal obligatory education started in Europe in the sixteenth century, and certain regions of the world made it possible one tiny step at a time, even though the history of tutoring is still running strong due to the fact that records of fellows exist. Education is one of the most important things that has ever happened to humanity, regardless of what some people may say about the media of the past. It's all around you. The evaluation and moderate considerations are used to treat severe illnesses and promote greater prescriptions to control a wide range of dreadful organisms and diseases. It is evident that we have a tendency to be conceited about the greater level of infrastructure improvement. These and innumerable

extraordinary advantages confirm the gospel that we shall be taught not to do while not in training. The advent of the new age began in the seventeenth century, which marks the beginnings of the financial turmoil and the release of the newest technology, however, the historical background of the period dates back several centuries. Age became ingrained in many aspects of life, including preparation, foundation, and well-being, to name a few, as the years went by. It began to demonstrate encouraging results. Regardless, even the most basic expectations, a plan, or something else could have disastrous consequences in an unimaginably globalized world of defects. This article aims to visualize both the terrible and positive effects of time, as well as its progress in preparation and, if possible, its implications to address the problems we will likely be prone to experiencing during this era. The wonderful and dreadful effects of spending time preparing Although investing time in preparation gives children the opportunity to express their future as helpful and supporting voters, several factors prevent this from becoming a complete reality. This advancement in age has had various superb outcomes on education. "I accept this new age can be an eminent highlight help our understudy's development their records standard in school." The media-master here at mhs. "Young people nowadays will recover a wide range of skills at a miles faster charge than at any other time." with cell phones one will Google something and understand two or three reliable assets of information at stretches of seconds. PDAs region unit advantageous, keeping understudies refreshed on things that area unit occurring inside the universe. Understudies will stay current on current events, sports, and legislative issues when they just open a partner confirmation application. The vertical drive in modern technology has many positive effects, but it also has terrible effects on education. Teenagers are highly engaged with the material being genuinely taught when they have PDAs in their chat rooms. Instead of paying attention to their teachers, they are working hard and engaging in their games or social media. Undergraduates will actually look for answers to questions and copy them verbatim. They are only continuations of information rather than thoughts and ideas. When understudies do that, they are not actually analyzing the content. In addition to being incredibly innovative, Smart Forums district units offer a wide range of training and enable teachers to provide students with an infinite amount of information. In order for the entire class to see the undergrads, Scholastics will display any page they require on an oversized board. Microsoft PowerPoint, Viewpoint, and a number of chance projects that are excellent for teaching are also included in reasonable sheets. With the help of the sensible wallet programming tool, which comes in an all-inclusive bundle with a reasonable board, users can combine notes, photos, and optional media into a sophisticated scratch pad that can be predicted and modified using the beneficial board itself. Elective reasonable programming comprehensive bundle item, as reasonable response intelligent response, the down to earth document camera, functional norms thought planning programming bundle, reasonable journal number juggling hardware and commonsense record remote record area unit

intended for use with and may join with the reasonable board for opportunity obligations.

Positive Effect

1. Facilitates Helps Gaining knowledge
2. Contributes to teaching
3. Develops the minds of scholars

Negative Effect

1. Kills imagination in college students
2. Distractions
3. Incorrect information
4. Promotes laziness

1.4. OBJECTIVES OF THE STUDY

- 1 To analyse the positive effects of modern technologies, such as digital tools, e-learning platforms, and artificial intelligence, on enhancing teaching and learning outcomes in the digital age.
- 2 To examine the negative consequences of modern technologies on education, including issues related to the digital divide, screen time, and the potential loss of traditional learning methods.
- 3 To evaluate the general outcome of the recent technologies to engagement and accessibilities among students as well as education in equitability in recent schooling sites.

2. LITERATURE REVIEW

Rao and Kalyani (2022) conducted a study on the positive and negative effects of social media on society, where they discussed that it has two faces, negative and positive. The outcomes of this study show the benefits that social media presents, including communication, sharing of information, and connectivity within society. Besides, the authors highlighted the need to balance the benefits accrued by social media with the responsibility to minimize its negative impact. Their research added to the already existing discourse regarding how the rise in influence of social media was impacting the social and human life dynamics.

McLean and Wilson (2019) revealed that augmented brand engagement through AR will result in higher satisfaction in the app experience and future intentions of using the brand. Critical practical implications for stores regarding the adoption of AR technology are provided by this research. It helps us understand the interaction between consumers and brands through AR features on mobile apps used by business organizations. Augmented reality has become a new technology that shops may use to interact with customers because smartphones are so common. Despite being relatively new in consumer markets, several creative retailers have integrated augmented reality (AR) technology into their mobile applications. The study presents a new set of augmented reality characteristics—AR novelty, AR interaction, and AR vividness—and shows how they affect the accepted characteristics of technology, such as perceived utility, enjoyment, and subjective standards. Through the retailer's AR mobile application, brand engagement is positively impacted by

favorable opinions of the AR features and technology acceptance features.

Odgers and Jensen (2020) interconnected through digital technologies. Unprecedented levels of social media use and mobile device ownership have sparked worries that teens' mental health is being negatively impacted by their continual connectedness. To compile the body of knowledge regarding the connections between digital technology use and adolescent mental health, specifically depression and anxiety, this review synthesized data from three sources: (a) narrative reviews and meta-analyses carried out between 2014 and 2019, (b) extensive preregistered cohort studies, and (c) intensive longitudinal and ecological momentary assessment studies. The majority of research to date has been correlational, focusing on adults as opposed to teenagers, and producing a variety of frequently contradictory tiny positive, negative, and null relationships, the review notes. The most recent and thorough large-scale preregistered studies show weak correlations between the amount of digital technology used daily and the well-being of adolescents. These associations are estimated to be of little clinical or practical significance and do not provide a means of differentiating cause from effect. Implications for enhancing subsequent studies and promoting the mental health of teenagers in the digital era are examined.

Szymkowiak *et al.* (2021) investigate the role of information technology, the internet, and teachers in the education of Generation Z. Their study reflects the growing role of digital tools in shaping young people's experiences of learning, underlining a transformative function of technology within the present education context. The paper examined how teachers use technological resources to engage students and improve their learning outcomes. They also presented some challenges associated with the technology such as distraction by the same, and unequal accessibility of digital resources. Technology is deemed to have many educational benefits although effective implementation of the technology calls for a balanced approach by ensuring teachers guide and support learners in this new age.

3. RESEARCH METHODOLOGY

The research methodology gives a clear, structured way of collecting and analyzing data related to the positive and negative implications of modern technologies in educational sectors, ensuring that findings would be reliable, measurable, and relevant to the current settings of the educational sector.

1. Research Design

The current research applies the descriptive research design to investigate both positive and negative impacts of modern technologies in the digital age towards education. The design attempts to explore and document the multiple perspectives of how digital tools, e-learning platforms, and artificial intelligence are transforming teaching, learning outcomes, student engagement, and educational equity. A quantitative approach is used that will allow for the gathering of numerical data to see the spread of opinions on factors and understand their relationship with the role of modern technology in education.

2. Research Method

This paper uses a quantitative research methodology where measurable data is collected regarding the positive and negative effects of modern technology in education. The technique used here is that of analyzing participants. This can help clearly understand the trend and prevalence of various factors of impacts of technology on education.

3. Research Sample

The sample had 200 participants who came from very diverse educational backgrounds, including students, teachers, and administrators of different schools. Convenience sampling has been selected for the participants since such people would be easily accessed for interviews and still show representations among various stakeholders. For ascertaining this study size, it considered how researchable the subject area happens to be while trying for an adequate response quantity by which a generalizing conclusion has been drawn.

4. Data Analysis

A descriptive statistical analysis of the collected data was made, wherein the frequency of responses under categories of positive and negative impacts was determined, and their percentages were presented to understand how these opinions are distributed among participants. Organizing data, which was then presented in tabulated and figured forms, required careful visual presentations for all aspects. Inputting, tabulation, and percentage calculations were done using Excel. Further, the study used basic comparative analysis to evaluate the significance of the findings and interpret the overall impact of modern technologies on student engagement, accessibility, and educational equity. The study captures the frequency and percentage distribution of both the positive and adverse effects of modern technologies to education with emphasis on key factors such as student engagement, access, and equity. It also assesses the overall implications drawn by these technologies on teaching results and identifies areas of improvement or challenges.

Table 1: positive effects of modern technologies

Positive Effect of Modern Technologies	Frequency (Number of Participants)	Percentage (%)
Improved Student Engagement	35	18%
Access to Global Learning Resources	40	20%
Enhanced Learning Outcomes	51	30%
Flexibility and Convenience	21	10%
Increased Collaboration and Interaction	31	15%
Use of Personalized Learning Tools	22	11%

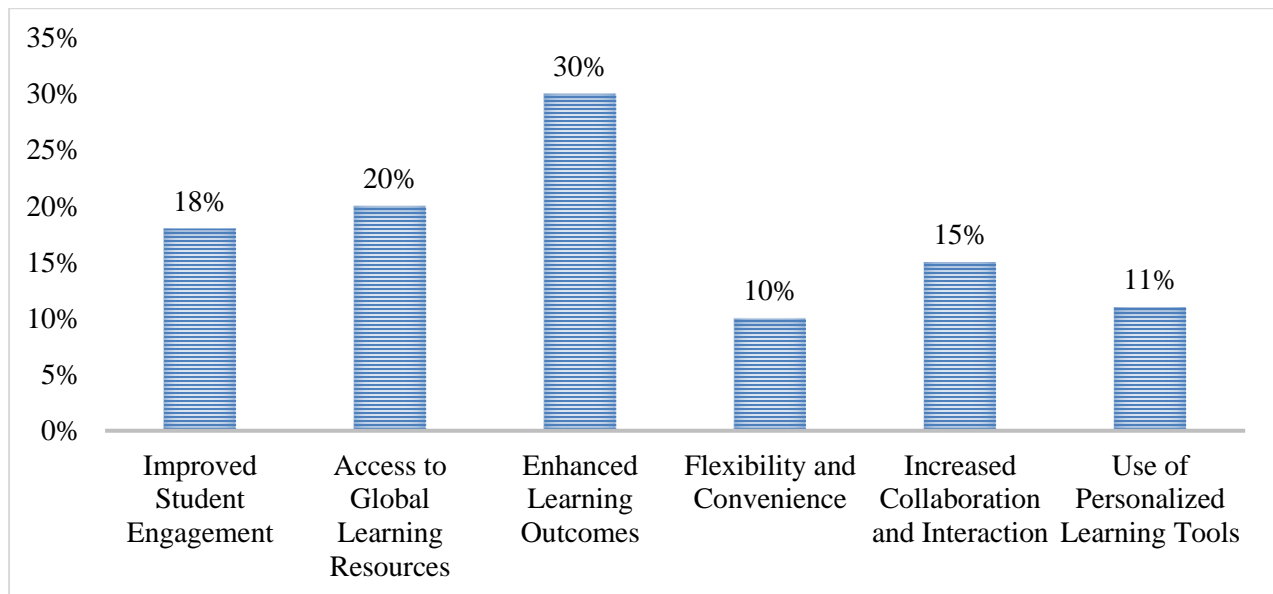


Figure 2: positive effects of modern technologies

Interpretation: The most prominent impact, based on the data, is in "Improved Learning Outcomes," with the highest percentage of responses at 30%, meaning that most participants believe that modern technologies significantly contribute to enhancing student performance. "Access to Global Learning

Resources" follows with 20%, reflecting the importance of digital tools in expanding access to diverse educational materials. "Improved Student Engagement" was another commonly reported effect: 18% of the respondents agreed that technology-maintained student interest and participation. Other beneficial

effects included "Increased Collaboration and Interaction" (15%), meaning that technology leads to greater communication and collaboration, and "Flexibility and Convenience" (10%),

which emphasizes that modern tools can be adapted to accommodate different learning environments.

Table 2: Negative consequences of modern technologies on education

Negative Consequences of Modern Technologies	Frequency (Number of Participants)	Percentage (%)
Increased Screen Time	23	12%
Digital Divide (Access to Technology)	30	15%
Distraction from Learning	25	13%
Dependence on Technology	40	20%
Loss of Face-to-Face Interaction	42	21%
Reduced Critical Thinking and Memory Retention	40	19%

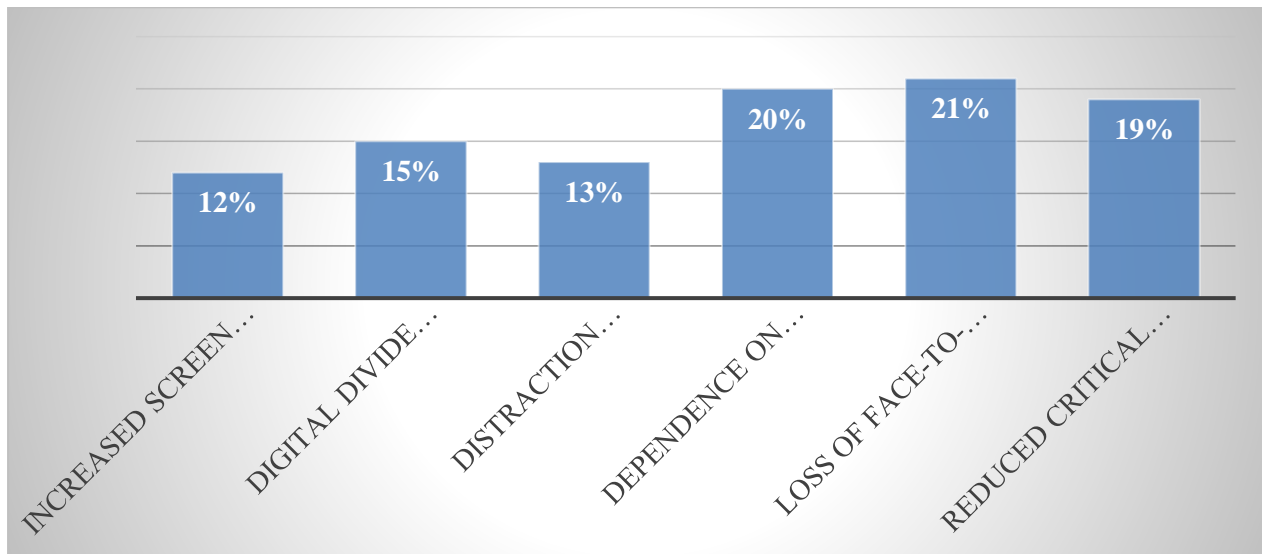


Figure 3: Negative consequences of modern technologies on education

Interpretation: The table summarizes how modern technologies affect education unfavorably, including the number and percentages of respondents who selected any given issue. Loss of face-to-face interaction was the greatest threat, with 42 respondents, which is 21%, labeling it as a major negativity. Dependence on modern technology and reduced critical thought and memory were both common issues, with 19% of respondents reporting at 40 each. Other issues include the digital divide

(15%), and unequal access to information and its means, as cited by 30 participants (15%). Distraction from learning was noted by 25 participants or 13%, and lastly, increased screen time was noted by 23 participants, or 12%. These findings imply that where modern technologies offer several benefits, they also pose significant challenges that impact the effectiveness and quality of education.

Table 3: Impact of modern technologies on student engagement

Aspect of Impact	Frequency (Number of Participants)	Percentage (%)
Improved Student Engagement	45	22%
Increased Accessibility to Education	35	17%
Improved Educational Equity	51	26%
Enhanced Learning Resources Availability	30	15%
Technology Accessibility (Affordability)	25	13%
Support for Special Needs Students	14	7%

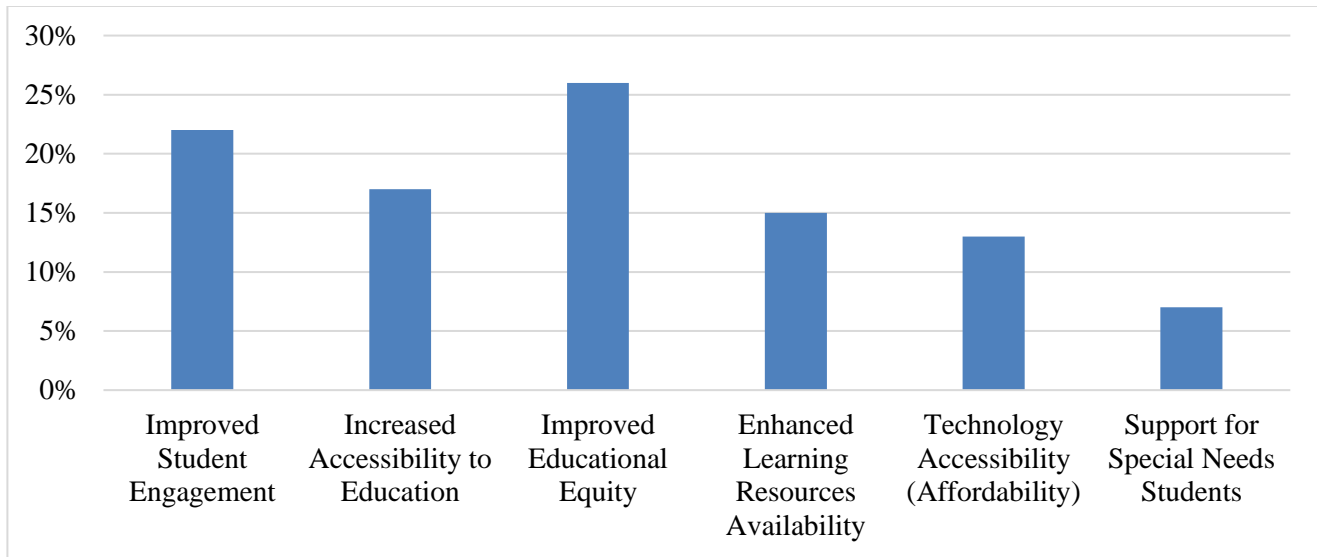


Figure 4: Impact of modern technologies on student engagement

Interpretation: 17% of the participants said that due to technological improvement, education became more accessible. 15% participants agreed that due to such technological advancements, better learning facilities were available, while 13% of participants highlighted issues regarding accessibility and unaffordability of technology for students. The least recognized impact by the participants was support for special needs students as only 7% of participants stated its importance. This therefore indicates that while modern technologies have improved student engagement and equity so much, still, certain areas such as access and student support with special needs can still be improvised.

4. CONCLUSION

Modern technologies are deeply and intricately influential in education. Positive impacts are shown through better learning outcomes, greater engagement, and increased access to learning resources. These technologies also promote the development of tailored learning experiences that enhance better collaboration and flexibility in learning. However, there are negative implications like overdependence on technology, a reduction in critical thinking ability, and the digital divide, which pose significant obstacles to equal access to education. The paper calls for the balanced integration of technology in learning environments to reap its benefits but also reduce the adverse effects it causes. It indicates that future efforts should be directed toward enhancing access to technology, support for students with special needs, and the preservation of traditional learning methods to ensure educational integrity in the digital age.

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