

Impact of Digital Learning on Environmental Awareness among High School Students in East Champaran, Bihar

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Abstract—This research examines how digital learning affects environmental awareness among high school students in East Champaran, Bihar. As digital tools become increasingly integrated into education, it is crucial to comprehend their influence on shaping students' understanding of environmental issues. A quantitative survey methodology was utilised, focusing on 300 high school students who engage with digital learning materials. The study seeks to measure the degree of environmental awareness, assess how effective digital learning is in promoting sustainable practices, and identify the factors influencing students' involvement with environmental matters. Data gathered through a pre-tested interview schedule were processed using descriptive statistical techniques. The results of this research will offer valuable insights into how digital learning can boost environmental awareness and guide strategies for using technology in environmental education.

Index Terms—Digital learning, Environmental awareness, High school students, Sustainability education, Environmental education.

I. INTRODUCTION

The rapid growth of digital technologies has revolutionised the educational sector, providing incredible opportunities for learning and engagement. As the global community confronts the issues of climate change, environmental destruction, and sustainable development, education plays a pivotal role in forming the environmental awareness of future generations. Digital learning, characterised by its adaptability, availability, and interactive qualities, has surfaced as a valuable instrument for enhancing environmental consciousness and sustainability among learners. In India, where there is an increasing focus on environmental education, digital learning platforms are being utilised to broaden reach and nurture a sustainability-oriented culture. East Champaran, Bihar, known for its varied ecosystems and abundant biodiversity, offers a distinctive setting for examining the effects of digital learning on environmental awareness in high school students.

This research aims to explore how digital learning impacts environmental awareness among high school students in East Champaran, Bihar. By analysing the connection between digital learning and environmental consciousness, this study endeavours to guide strategies for utilising technology in fostering sustainability and environmental education within the region. The results of this research will add to the expanding literature on digital learning and environmental education, providing valuable insights for educators, lawmakers, and stakeholders dedicated to achieving a more sustainable future.

II. REVIEW OF LITERATURE

Digital learning has become an essential resource for boosting environmental awareness among high school students, especially in areas like East Champaran, Bihar. The incorporation of digital platforms in education not only improves access to environmental knowledge but also promotes sustainable practices among students. This impact is complex, involving factors such as digital literacy, school culture, and the application of innovative educational technologies. The subsequent sections delve into these elements in detail.

- The role of digital literacy is vital in enhancing students' understanding of environmental issues. Research indicates that students possessing higher digital literacy skills are likely to have greater environmental awareness, as digital platforms offer a vast array of information and resources related to environmental topics (Rahmatulloh & Napis, 2024). The capability to navigate and comprehend digital content enables students to interact with real-world environmental scenarios, thus deepening their awareness and perception of environmental challenges (Rahmatulloh & Napis, 2024).
- Digital learning platforms, like virtual simulations, improve students' understanding of environmental concepts by offering engaging experiences that are often lacking in conventional teaching methods. These platforms positively influence students' attitudes and behaviours towards the environment (Shuai et al., 2024).
- The presence of a pro-environmental school culture plays a significant role in enhancing students' awareness of environmental issues. Schools that combine digital learning with a strong commitment to environmental values tend to be more effective at implementing sustainable practices (Tanubrata et al., 2024).
- Digital platforms play a key role in fostering environmental awareness by granting access to information regarding eco-friendly products and sustainable practices. This accessibility motivates students to embrace green consumption habits (Dat et al., n.d.). E-learning and digital tools contribute to the United Nations Sustainable Development Goals by encouraging inclusivity and sustainability, thereby nurturing eco-friendly behaviours among students (Aarthi et al., 2025).
- Despite the advantages, obstacles such as the digital divide and inadequate infrastructure can limit the impact of digital learning on raising environmental awareness. Tackling these issues necessitates creative frameworks and policies to guarantee fair access to digital education (Aarthi et al., 2025).

- While the advancement of education helps students understand global environmental challenges, it also carries the potential risks of consumerism and a disconnect from natural ecosystems. Striking a balance between digital learning and hands-on, nature-based education is essential for nurturing a comprehensive environmental consciousness (Agnihotri & Gautam, 2025).

III. RESEARCH METHODOLOGY

The research utilised a quantitative design, employing a survey method to gather information from high school students in East Champaran, Bihar. This approach was selected to obtain numerical data and examine the connection between digital learning and environmental awareness. The population for this study consisted of high school students in East Champaran, Bihar. A proportionate random sampling technique of 300 students was employed for the study.

IV. RESULTS & DISCUSSION

The results show that 210 students (70%) reported a positive impact of digital learning on environmental awareness.45 students (15%) saw no impact.15 students (5%) reported a negative impact.30 students (10%) were not sure about the impact. This study addresses a key gap by quantifying the impact of digital learning on environmental awareness in a rural Indian context, providing empirical support for expanding digital education initiatives in sustainability curricula.

Table 1: Impact of Digital Learning on Environmental Awareness

Impact	Frequency	Percentage (%)
Positive Impact	210	70
No Impact	45	15
Negative Impact	15	5
Not Sure	30	10

Discussion
The results indicate that a substantial majority (70%) of students observe a positive effect of digital learning on their environmental awareness. This implies that digital learning serves as an effective means of enhancing environmental education and awareness among students.

- Several factors that may contribute to this positive outcome include:
- Greater access to environmental information and resources
 - Engaging and interactive digital materials
 - Opportunities for online discussions and teamwork
- Nevertheless, a small proportion (5%) of students reported a negative effect, underscoring the necessity to:
- Recognise and address possible drawbacks or limitations
 - Ensure that digital learning opportunities are inclusive and accessible

In summary, the results indicate that digital learning can be an effective instrument for fostering environmental awareness and education. This highlights the need for greater digital inclusion in sustainability education, particularly in rural government schools, where access to e-learning platforms and interactive environmental programs is minimal.

V. CONCLUSION

This research examined how digital learning impacts environmental awareness in high school students in East Champaran, Bihar. The findings emphasise the ability of digital technologies to improve educational outcomes and encourage sustainability. Although digital learning greatly improves environmental awareness among high school students, it’s crucial to take into account the wider educational framework. The use of digital tools should enhance, rather than replace, conventional teaching methods to create a well-rounded approach to environmental education. This way, students will not only acquire knowledge through digital resources but also cultivate a strong bond with their natural surroundings, promoting a thorough understanding and dedication to sustainability.

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