

## Education for Sustainable Development in the Age of Digital Transformation

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### Abstract

The study focuses on Education for Sustainable Development in the age of digital transformation and changing climate conditions. It examines how education helps create awareness about sustainability and environmental issues. Today, digital platforms and online resources also support learning beyond classrooms. The study is based on primary data collected from 113 respondents using a structured questionnaire. The findings show that people believe sustainability should be part of education and that digital tools make learning about climate issues easier. Overall, the study highlights the importance of combining education and digital technology to promote environmental awareness and responsibility.

**Keywords:** Education, Sustainable development, Digital tools, Climate awareness and Responsibility

## **I. INTRODUCTION**

Education for Sustainable Development (ESD) not only enhances environmental literacy but also encourages critical thinking, problem-solving, and responsible decision-making among individuals. By integrating sustainability principles into formal and informal education systems, societies can prepare learners to address complex global challenges such as climate change, resource depletion, and biodiversity loss. At the same time, climate change is becoming a real and visible problem in everyday life. Rising temperatures, extreme weather events, and environmental degradation show that awareness alone is not enough. People need practical knowledge and a responsible mind-set to take meaningful action.

Digital learning tools can play an important role in shaping this mindset by making sustainability education more interactive, relatable, and engaging. Therefore, it is important to explore how people perceive sustainability education and whether digital approaches truly influence their climate awareness and attitudes toward sustainable practices.

### **Statement of the Problem**

In today's world of digital transformation and growing climate problems, education plays an important role in creating climate awareness. Many people learn about sustainability through online platforms and digital tools, but it is not clear how much this actually changes their understanding and thinking. So, the study looks at whether education in the digital age really helps improve climate awareness and encourages responsible behavior toward sustainability.

### **Objectives of the Study**

- To assess public perception of education for sustainable development.
- To derive actionable insights for improving sustainability education in the digital age.
- To examine the role of education in shaping climate awareness.
- To analyze the impact of education in sustainable mindsets of people.

### **Need of the Study**

- To see how education helps students understand climate and sustainability issues.
- To know how digital learning supports awareness about sustainable development.
- To find out whether sustainability topics are properly included in education.
- To understand how students can be prepared for environmental changes.

### **Scope of the Study**

The study focuses on public perception of Education for Sustainable Development in the context of digital transformation and climate awareness. It looks at how digital tools and online platforms support learning about sustainability and environmental issues. The study also examines whether digital learning influences awareness, attitudes, and responsible behavior toward the environment. The analysis is based on primary data collected through a structured questionnaire and is limited to the chosen sample.

### **Significance of the Study**

The study is important because climate change and environmental problems are increasing rapidly. Students need proper awareness and understanding about sustainable development. The study shows how education can help build responsible thinking and behaviour among learners. It also explains how digital learning tools can support sustainability education. The study is useful for schools and colleges that want to improve their teaching methods.

### **Originality**

The study is original because it connects sustainable development, digital transformation, and climate conditions in one framework. Many researches discuss these topics separately, but the study combines them together. The study focuses on the present situation where technology and environmental issues are both influencing education. It gives a fresh perspective on how digital tools can support sustainability learning. The study also considers current educational practices, which makes it more relevant.

### **Replicability**

The study can be repeated in other schools, colleges, or regions using the same research method. The study uses simple tools like surveys or questionnaires, which makes replication easy. Other researchers can apply the same process to compare results in different areas. The study design is clear and systematic, so it can be followed without difficulty. This makes the findings more reliable and practical.

### **Logical Structure**

The study begins by explaining the need for sustainable development in the present climate situation. It then discusses the role of digital transformation in education. After that, data is collected and analysed to understand awareness and gaps. The study presents findings in a clear and organised manner. Finally, it gives

suggestions based on the results. The overall structure of the study is simple, systematic, and easy to understand.

### **Literature Review**

**Yadava S (2020)** Education for Sustainable Development in India: Reality Check on Ground Zero, examined how Education for Sustainable Development (ESD) is implemented in India by analysing policies and curriculum practices. The study was conducted to understand the gap between sustainability policies and actual classroom execution. Through qualitative review of educational frameworks and institutional practices, the research found that although sustainability is recognized at the policy level, practical integration remains limited. The author emphasizes the need for stronger teacher training and structured curriculum reforms to effectively promote sustainable development in Indian education.

**Alam and Mohanty (2025)** Psychology of Sustainability: Education for Sustainable Development in India explored how psychological and educational factors influence students' understanding of sustainable development in India. The study found that people with greater engagement and reflective thinking showed stronger sustainability awareness. The study concluded that effective education for sustainable development requires not just curriculum content but also attention to student's motivation and mindset.

**Saini and Neha Rani (2023)** Conceptual Understanding of Education and Sustainable Development discussed the role of education in promoting sustainable development in India. The study explains that integrating sustainability into curriculum helps build environmental awareness, social responsibility, and ethical values among students. The authors conclude that holistic sustainability education is necessary for long-term national development.

### **Research Methodology**

<b>Research design</b>	Descriptive research
<b>Sampling method</b>	Convenience sampling
<b>Sample size</b>	113
<b>Data collection</b>	Primary data and secondary data
<b>Statistical analysis</b>	Chi-square
<b>Tools used</b>	Jamovi and excel

Analysis and Interpretation

**Table 1**  
**Sustainability Education Improvements**

Sustainable Improvements	Frequency	Percentage
Real life climate risk	14	12.4%
Digital tools use	26	23%
Interdisciplinary learning	28	24.8%
Project based assessment	26	23%
All of the above	19	16.8%

The majority of respondents (24.8%) preferred interdisciplinary learning as the most meaningful future-oriented change in sustainability education. About (23%) of respondents supported integrating digital tools into everyday learning. Similarly, (23%) of respondents favoured project-based assessment instead of traditional exams. Around (16.8%) of respondents agreed with all the given options together. A smaller proportion of respondents (12.4%) preferred linking lessons only to real-life climate issues.

**Table 2**  
**Sustainable Decisions Today**

Decisions	Frequency	Percentage
Ethics in future	10	8.8%
Balance between technology and nature	33	29.2%
Ability to adapt	40	35.4%
Collective responsibility	12	10.6%
All of the above	18	15.9%

The majority of the respondents selected Ability to adapt to uncertainty (35.4%). Many respondents also chose Balance between technology and nature (29.2%). Some respondents preferred all of the above (15.9%), while a smaller number of respondents selected Collective responsibility (10.6%). The least number of respondents chose Ethics toward future generations (8.8%).

Chi-Square

Chi-Square Test	Value	Df	P
$\chi^2$	5.61	4	0.230
N	113		

- The chi-square analysis is taken between gender and the inclusion of sustainability topics covered in school and college education.
- The value is 5.61 so there is no significant association between gender and inclusion of sustainability topics taken.

### **Findings of the Study**

- Most respondents have exposure on sustainability related topics in school education.
- Sustainability is considered relevant in day-to-day life of people.
- Majority of respondents view sustainability related information in social media and educational platforms.
- Respondents agreed that digital tools enhance sustainability related information.
- Respondents also acknowledged the use of digital tools but there is a major concern over misinformation.
- Sustainability is viewed widely as a shared responsibility across the society.
- There is a strong support for educational institutions to implement interdisciplinary learning.
- Majority of respondents considered that future education can be related to sustainable concepts through assessments and practical learning.
- Respondents agreed that ability to adapt to future uncertain events is a skill that everyone must have learn.

### **Suggestions**

- People can learn the ability to adapt to climate uncertainty and focus more on saving the environment.
- Social media can be used more for circulating sustainability related information.
- Educational institutions can provide more sustainability related information by conducting activities for their students.

## **II. CONCLUSION**

Education plays an important role in promoting sustainable development, especially during rapid digital growth and increasing climate problems. When sustainability concepts are properly included in the curriculum, students become more aware and responsible towards the environment and society. Digital tools can further support this learning if used effectively and equally accessible to all learners. It is also important that teachers receive proper training to deliver sustainability

topics in a practical and meaningful way. Educational institutions must focus not only on knowledge but also on values and real-life application. Therefore, strengthening sustainability education is necessary to prepare students for present and future environmental and social challenges.

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