

Vol. 3 Issue 4 Aug, 2024

E-ISSN: 2583-3413

# Bengal Journal of Social Science and Development



## Special Issue On

Technology and Its Impact on Language,  
Society, Education and Climate Change

---

# Conference Proceedings

---

## Chief Editors

Dr. Sahin Sahari  
Labani Mandal  
Yankeela Bhutia

## Associate Editors

Dr. Saheli Chowdhury  
Brihaspati Mahato  
Kalyan Ghorai

Published by- NSD Educational Welfare Trust

(A Govt. Reg. IAF-ISO Certified, NITI Aayog NGO Darpan Reg., MSME Reg. Non-Governmental & Non-Profit Seeking Organization)

---

## About This Special Issue

---

The *Bengal Journal of Social Science and Development*, An Online Quarterly Published International Open-Access Indexed Peer Reviewed Journal (E-ISSN: 2583-3413) is proud and honoured to present this special issue (Volume-3 Issue 4 August. 2024) titled “*Technology and Its Impact on Language, Society, Education, and Climate Change.*” This issue compiles the insightful proceedings from the international conference TILSECC-2024 which is jointly organized by the Departments of Education, Sociology, and Santali of Belda College, which is located at Paschim Medinipur District of West Bengal on 8<sup>th</sup> August – 9<sup>th</sup> August 2024, where academicians, teachers, research scholars and students from the various fields gathered to explore the multifaceted influence of technology on our world today.

---

## Publication Information

---

This special issue is published by the NSD Educational Welfare Trust, a government-registered, IAF-ISO certified, NITI Ayog NGO Darpan registered, MSME registered non-governmental and non-profit seeking organization. It represents Volume 3, Issue 3 of the journal, dated August 2024.

---

## Acknowledgments

---

We would like to express our heartfelt gratitude to everyone who contributed to the successful publication of this special issue. This issue, would not have been possible without the collective efforts of many individuals and organizations.

Firstly, we extend our sincere thanks to the authors and presenters who shared their valuable research and insights papers at the TILSECC-2024 conference. Their contributions have been instrumental in shaping the discourse on technology's multifaceted impacts and have enriched this special issue with diverse perspectives and innovative ideas.

We are deeply grateful to the reviewers whose expertise and dedication ensured the quality of the published papers. Their constructive feedback and evaluations have greatly enhanced the standard of this publication.

Our appreciation goes out to the organizing committee of TILSECC-2024, especially the Departments of Education, Sociology, and Santali of Belda College. We also acknowledge the support of the NSD Educational Welfare Trust for providing a platform for scholarly exchange and for their continuous efforts in promoting education and research. Their unwavering support and resources have been very vital in making this special issue possible.

We extend our deepest gratitude to the organizing committee, whose tireless efforts made this conference and the subsequent publication of this issue possible. Special thanks go to: Dr. Saheli Chowdhury, Assistant Professor, Department of Sociology, Belda College; Mr. Brihaspati Mahato, Assistant Professor, Department of Santali, Belda College; Mr. Kalyan Ghorai, Assistant Professor, Department of Education, Belda College

We also acknowledge the organizing members, whose dedication and support were important in the success of the conference: Dr. Arindam Pahari, SACT, Department of Sociology, Belda College; Mrs. Moumita Dutta, SACT, Department of Education, Belda College; Mr. Sumitesh Dingal, SACT, Department of Education, Belda College; Ms. Manisha Jana, SACT, Department of Education, Belda College; Mr. Ashok Banerjee, SACT, Department of Sociology, Belda College, Jhili Dutta & Susmita Jana, SACT, Dept. of Sociology, Belda College.

A special note of appreciation to our keynote speakers and resource persons, whose expertise and insights greatly enriched the conference discussions: Dr. Binayak Chanda, HoD & Assistant Professor, Department of Education, Govt. General Degree College, Muragachha, West Bengal, India; Prof. (Dr.) Jayanta Mete, Professor, Department of Education, University of Kalyani, Kalyani, West Bengal, India; Mr. Sheikh Saifullah Ahmed, Senior Lecturer, IUBAT, Dhaka, Bangladesh; Ms. Dilara Dilshad, Lecturer, IUBAT, Dhaka, Bangladesh; Dr. Chandrabali Dutta, Assistant Professor, Department of Sociology, Hiralal Mazumdar Memorial College, West Bengal, India; Mr. Subhamoy Chakraborty, Environmental Engineer, Jai Balaji Industries Limited, Durgapur, West Bengal; Dr. Lopamudra Sardar, Principal, Bhagirathi Teachers' Training Institute, Murshidabad, West Bengal, India; Dr. Dipak Bhattacharya, Assistant Professor, Department of Education, D.N.C. College, Murshidabad, West Bengal, India

We also express our gratitude to the student coordinators who assisted in making this event successful: Ms. Mandira Shit, Department of Education, Belda College, Mr. Akash Maji, Department of Education, Belda College; Ms. Rimashri Pandit, Department of Sociology, Belda College; Mr. Rupchand Tudu, Department of Santali, Belda College

Our heartfelt thanks extend to our chief patron and patron, whose guidance and support have been invaluable: Sri. Surja Kanta Atta, MLA, Narayangarh Block and Honourable President, Governing Body, Belda College and Dr. Chandrasekhar Hajra, Principal, Belda College.

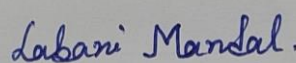
Lastly, we express our gratitude to our readers for their interest and engagement with this special issue. We hope that the research and insights presented herein will inspire further inquiry and action in addressing the challenges and opportunities presented by technological advancements.

Thank you all for your valuable contributions and support.

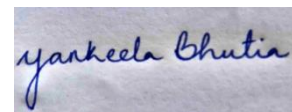
Warm regards from the chief editors,



.....  
Dr. Sahin Sahari  
HoD & Asst. Prof., Dept. of  
Education, Belda College



.....  
Labani Mandal  
HoD & Asst. Prof., Dept. of  
Sociology, Belda College



.....  
Yankeela Bhutia  
Asst. Prof., Dept. of  
Sociology, Belda College

---

## Message from the Editors

---

Respected Readers,

We are delighted to present this special issue of the *Bengal Journal of Social Science and Development* (Volume 3, Issue 4, August 2024), titled “Technology and Its Impact on Language, Society, Education, and Climate Change.” This edition is a tribute to the groundbreaking work showcased at the TILSECC-2024 conference, reflecting the diverse and profound ways in which technology is reshaping our world.

The range of papers in this issue underscores the dynamic role of technology in various domains. From Enhancing Sustainability Through Environmental Education to the Impact of Artificial Intelligence in Language Preservation, these studies illustrate how technological innovations are creating new opportunities for development and engagement.

A notable theme is the transformative power of technology in education. Papers such as Transforming Classrooms: The Role of Robotics and AI in Modern Education and AI-Enhanced Learning: Developments, Challenges, and Prospects for the Future of Education explore the evolving landscape of teaching and learning, highlighting the benefits and challenges of integrating advanced technologies in educational settings.

Another crucial area of exploration is the impact of technology on marginalized communities. Contributions like The Role of Technology in Enhancing Girls' Access to Education and Technological Awareness among Tribal Women: A Step Towards Women Empowerment emphasize the potential of technology to bridge gaps and promote equitable learning experiences for diverse student populations.

This issue also explore the socio-cultural implications of technology, with studies such as Cyber Bullying and Online Harassment: An Overview on School Going Students Who Uses Technology in Bangladesh.

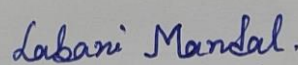
The editors wish to extend their gratitude to all contributors for their insightful research and to the reviewers for their rigorous evaluations that have ensured the quality and relevance of this special issue. We hope these papers will inspire further research and discussion on the vital themes of technology's impact on our lives and future.

Thank you for your continued support and interest in the *Bengal Journal of Social Science and Development*. We look forward to your feedback and engagement.

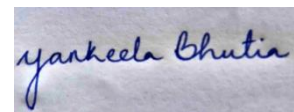
Warm regards from the chief editors,



.....  
Dr. Sahin Sahari  
HoD & Asst. Prof., Dept. of  
Education, Belda College



.....  
Labani Mandal  
HoD & Asst. Prof., Dept. of  
Sociology, Belda College



.....  
Yankeela Bhutia  
Asst. Prof., Dept. of  
Sociology, Belda College

---

†

## *Content List*

†

---

Sl. No.	Title	Author(s) Name	Page No.
1	Enhancing Sustainability Through Environmental Education: Insights from Higher Education and Youth Engagement	Dr Seema Yadav	1 – 18
2	Transforming Classrooms: The Role of Robotics and AI in Modern Education	Saeed Anowar & Dr. Reshma Khatun	19 – 42
3	Cyber Bullying & Online Harassment: An Overview on School Going Students Who Uses Technology in Bangladesh	Md. Tauhiduzzaman - Sabur	43 – 48
4	Sustainability in the Digital Age: How Technology can empower Sustainability in Higher Education	Dr. Romana Ali Dr. Sunita Kejriwal	49 – 63
5	A Study on Educational Aspiration and Academic Achievement of Muslim Girl Students at Secondary Level in Bolpur Subdivision	Najmatunnessa Khatun Prof. Jayanta Mete	64 – 72
6	Technological Awareness among Tribal Women: A Step Towards Women Empowerment	Archita Pal Dr. Priya Mitra	73 – 88
7	Empowering student teachers: A catalyst for a sustainable future	Nilovi Chophi Visiezonuo Metha Dr Khotole Khieya Dr. Limala	89 – 106
8	Attitude of Teacher Educators' Towards Modern Trends of Technology in Teacher Education Programme	Mukesh Haldar	107 – 124
9	Utilization of Technology for English Language Teaching in 21st Century Classroom	Dr. Debolina Mukherjee	125 – 139
10	A Sociological Study on Attitudes of Santal Tribal Parents Towards Girls' Education on Literacy and Socio-Economic Status in Paschim Medinipur District, West Bengal	Mrs. Labani Mandal Dr. Arindam Pahari	140 – 156

---

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

## Enhancing Sustainability Through Environmental Education: Insights from Higher Education and Youth Engagement

Dr Seema Yadav

Assistant Professor, Bhopal School of Social Sciences,  
Bhopal, M.P., Email: [seemayadav1edu@gmail.com](mailto:seemayadav1edu@gmail.com)

---

### Abstract

Environmental education is essential for fostering a sustainable and environmentally conscious society. This article explores the role of environmental education in promoting sustainability by enhancing knowledge, attitudes, and behaviors towards ecological issues. It highlights the importance of integrating environmental education into both general and professional curricula through activity-based learning and interdisciplinary approaches, such as STEAM. Higher education institutions are pivotal in addressing global environmental challenges by leveraging their infrastructure and expertise to foster collaborative spaces among diverse stakeholders. Emphasizing local knowledge, practical applications, and community involvement, environmental education empowers youth as catalysts for change and encourages intergenerational dialogue to promote sustainability. By prioritizing environmental awareness and sustainable practices in supply chains and daily life, educational initiatives can drive significant ecological and societal benefits. This article underscores the need for concerted efforts from governments, academic institutions, and civil society organizations to ensure universal access to high-quality sustainability education, ultimately leading to a more sustainable and environmentally responsible future.

**Keywords:** Environmental education, Sustainability, Higher education, Interdisciplinary approaches, Youth engagement, Intergenerational dialogue, Community involvement

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

## Introduction

To increase awareness and spread knowledge about environmental challenges, environmental education is essential (Uda & Basrowi, 2024). Individuals working for an organization, especially supply chain specialists, are better able to spot opportunities to improve the supply chain's environmental impact when they are informed about environmental issues. Changing attitudes and behaviors towards the environment is the goal of environmental education (Uda & Basrowi, 2024). The environmental issues of the modern era demand that we reconsider our assumptions, ask probing questions and take corrective action. Perhaps more than in earlier eras, science education has played a significant part in the evolution of education and its adaptation to the modern world (Gülhan, 2023). Sustainability is greatly aided by modern environmental education and environmental education. Higher education institutions play a significant role in educating and preparing the next generation for a green society through environmental education (Boca & Saraçlı, 2019).

In order to minimize environmental degradation and social difficulties and to educate people for employment that contributes to sustainable development, (Maniatis, 2024) emphasizes in his conclusion the necessity for improved access to education on the subject of sustainability. Quality education is essential for promoting sustainability because it raises people's awareness of social and environmental issues and gives them the information and abilities to deal with them (Maniatis, 2024). In order to solve the social, economic, and environmental concerns of the twenty-first century, people need education to gain the knowledge, skills, values, and attitudes that education provides. This is why education is essential to achieving sustainability. In addition, education can encourage students' inventiveness, creativity, and resilience, all of which will improve their capacity to make significant contributions to society. Thus, society gains from an effective educational system (Ferguson & Bramwell-Lalor, 2023).

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

Environmental education is crucial for increasing awareness and understanding of environmental challenges, particularly for those working in organizations like supply chain specialists, as it helps identify opportunities to reduce environmental impact. The primary goal is to change attitudes and behaviors towards the environment. Modern environmental education plays a significant role in adapting education to contemporary needs by encouraging critical thinking and corrective action regarding environmental issues. Higher education institutions are vital in preparing the next generation for a sustainable society by providing education that minimizes environmental degradation and social issues. Quality education raises awareness of these issues and equips individuals with the necessary knowledge and skills to address them, fostering creativity, resilience, and the ability to contribute meaningfully to society.

## **Overview of Environmental Education (EE)**

A suite of tools that develops and enhances environmental attitudes, values, and knowledge as well as skills that enable individuals and communities to work together to take positive environmental action, constitutes effective environmental education, which goes beyond a one-way transfer of information. Additionally, by fostering links between practical research results and on-the-ground methods, environmental education fosters the development of cooperative spaces where stakeholders work together to address changing environmental concerns throughout time (Ardoin et al., 2020).

Environmental education creates areas of synergy where stakeholders work together to address changing environmental concerns over time by facilitating links between practical research findings and on-the-ground activities. Environmental education can directly improve the environment and provide a tangible solution to conservation challenges because of this dedication to implementation and iteration (Ardoin et al., 2020). The deliberate and planned process of promoting environmental knowledge is known as environmental education. Once



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

people have this knowledge, they can address environmental issues and work towards a future that is more ecologically conscious and sustainable (Uda & Basrowi, 2024). In order to protect and conserve the environment, youths need to be made aware of environmental sustainability challenges as early as feasible through both official and informal education. More local research on treatments that promote constructive behavioral changes is still needed in order to enhance people's awareness, skills, attitudes, and behaviors regarding environmental sustainability. One strategy that can be used to accomplish this goal is environmental education intervention (Rahman et al., 2023). The study of the environment is growing in popularity. Curiosity about the natural environment and methods of protecting it is growing among people. Giving consideration to the significant environmental problems our planet is currently facing is a good development (Masalimova et al., 2023). The pursuit of knowledge and comprehension of environmental issues is encouraged throughout life via environmental education, which doesn't end in the classroom. The more general objectives of sustainability are furthered by environmental education and knowledge-building (Uda & Basrowi, 2024).

From early childhood through maturity, people should cultivate the information, abilities, and attitudes necessary to promote sustainability. These are known as sustainability competencies. It is imperative that educational establishments encourage the cultivation of these sustainability competencies (Vesterinen, 2024). The idea of environmental sustainability and STEAM education should be investigated from an interdisciplinary perspective, and K–12 students should engage in these activities (Gülhan, 2023). In order to instill information, values, and attitudes as well as conduct that is consistent with sustainability in the region's population, Environmental and Sustainability Education (ESE) becomes essential. In recent decades, there has been an increase in the region's ESE projects (Ferguson & Bramwell-Lalor, 2023).

Effective environmental education involves developing and enhancing environmental attitudes, values, and knowledge, along with skills that enable individuals and communities to

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

take positive environmental action collaboratively. It goes beyond just transferring information, and fostering cooperation between stakeholders to address evolving environmental concerns by linking practical research with on-the-ground activities. This approach not only provides tangible solutions to conservation challenges but also promotes a sustainable, ecologically conscious future. Environmental education starts early, making youth aware of sustainability challenges through both formal and informal education. It encourages lifelong learning and curiosity about the natural environment, addressing significant environmental issues. Educational institutions play a crucial role in fostering sustainability competencies, such as knowledge, skills, and attitudes needed for sustainability, from early childhood through adulthood. Integrating environmental sustainability with interdisciplinary approaches like STEAM education is important, particularly for K–12 students. Environmental and Sustainability Education (ESE) aims to instill values and behaviors consistent with sustainability, with an increase in regional ESE projects over recent decades.

## **Definition and principles of sustainability**

The idea of sustainability has gained prominence in the Anthropocene. All educational institutions and fields should make this a core research subject. Education for Sustainability is about offering real-world learning opportunities related to the change of current thinking, practice, and values (Gülhan, 2023). The process of imparting knowledge, beliefs, and skills necessary for making well-informed decisions and taking action that promotes sustainable development is known as sustainability education or SE (Maniatis, 2024). The importance of SE has increased dramatically in response to the world's most urgent sustainability issues, including pollution, climate change, and biodiversity loss. The knowledge, skills, and moral underpinnings that people need to successfully address these issues are provided by SE (Maniatis, 2024). The idea of sustainability has become extremely important in today's society

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

since addressing climate change, environmental degradation, and social injustices is of utmost importance. In short, sustainability means that current requirements must be met without sacrificing the ability of future generations to meet their own. A significant shift in industrial practices, societal norms, and consumption patterns is necessary to achieve sustainability (Maniatis, 2024).

Global issues like biodiversity loss, air and water quality degradation, soil erosion, and climate change demand quick attention and action. For the sake of human existence as well as the health of our world, environmental conservation is vital. Teaching people about environmental issues, conservation, and sustainability to individuals, communities, and organizations is known as environmental education (Uda & Basrowi, 2024). Enhancing environmental knowledge, awareness, attitudes, and skills is its main goal. Climate change, ecosystem preservation, pollution avoidance, and sustainable resource management are just a few of the many subjects that environmental education can address (Uda & Basrowi, 2024).

Collaboration between businesses and their suppliers can be facilitated by environmental education. Suppliers can help create a more environmentally friendly supply chain by coordinating their operations with their clients' sustainability goals when they are aware of environmental issues and sustainable practices (Uda & Basrowi, 2024). An essential component of encouraging the efficiency of environmentally friendly supply chains is environmental education. It increases awareness, promotes behavioural shifts, and pushes the adoption of sustainable practices all the way across the supply chain, which eventually results in more ecologically friendly and sustainable supply chain operations (Uda & Basrowi, 2024). Sustainability is the ability to satisfy current needs without affecting the ability of future generations to satisfy their own needs. In order to reduce detrimental effects on the planet's ecosystems and resources, it entails taking a responsible and balanced approach to economic, social, and environmental issues (Uda & Basrowi, 2024). The ideas of sustainability can be

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

better understood and raised to awareness through the use of environmental education. It cultivates a sense of responsibility for environmental stewardship and informs people about the ecological, social, and economic aspects of sustainability (Uda & Basrowi, 2024). The promotion of sustainable practices through behavioral change is greatly aided by environmental education. Giving people the information and abilities they need to make ecologically responsible decisions in their daily lives, it affects waste, resource usage, and consumption habits (Uda & Basrowi, 2024). It is imperative that all stakeholders take serious and comprehensive steps to safeguard and manage the environment because the state of the environment is deteriorating and endangering the lives of humans and other living things. Protecting everyone's right to a healthier living environment and ensuring legal clarity are crucial for maintaining the ecosystem (Hernawan et al., 2022).

In the Anthropocene, sustainability has become a crucial focus for all educational institutions. Education for Sustainability aims to provide real-world learning opportunities that promote changes in thinking, practices, and values. Sustainability education imparts the knowledge, beliefs, and skills necessary for making informed decisions and taking actions that support sustainable development, addressing urgent global issues like pollution, climate change, and biodiversity loss. Sustainability involves meeting current needs without compromising future generations' ability to meet theirs. Achieving sustainability requires significant shifts in industrial practices, societal norms, and consumption patterns. Environmental conservation is essential for both human survival and the health of the planet. Environmental education aims to enhance knowledge, awareness, attitudes, and skills related to issues such as climate change, ecosystem preservation, pollution prevention, and sustainable resource management. Collaboration between businesses and suppliers can be enhanced through environmental education, aligning operations with sustainability goals to create more environmentally friendly supply chains. Environmental education promotes awareness, behavioral shifts, and the adoption of sustainable practices throughout the supply chain, leading to more sustainable

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

operations. Sustainability involves taking a balanced approach to economic, social, and environmental issues to minimize negative impacts on ecosystems and resources. Environmental education raises awareness and understanding of sustainability concepts, fostering a sense of responsibility for environmental stewardship. It also promotes sustainable practices through behavioral change, equipping individuals with the knowledge and skills to make environmentally responsible decisions in their daily lives. Protecting the environment is crucial for ensuring a healthier living environment and maintaining ecosystem balance, necessitating serious and comprehensive actions from all stakeholders.

## Curriculum Development in Environmental Education

Higher education may address a variety of internal and external environmental challenges with diverse players. In partnership with academic institutions and research centers, universities can effectively leverage their infrastructure and specialized knowledge to secure long-term support. They can aid in promoting and maintaining environmental education, informing people about environmental issues, and fostering the growth of a green society (Boca & Saraçlı, 2019). The knowledge, attitudes, and behaviors of students towards sustainability can all be improved through sustainability education. In particular, compared to students who did not get sustainability education, those who did have greater levels of sustainability knowledge, more positive attitudes towards sustainability, and were more likely to engage in sustainable behaviors (Maniatis, 2024). With environmental sustainability growing in importance on a global scale, universities are playing an increasingly important role in environmental sustainability initiatives. Through outreach, research, and teaching programs, universities can contribute to the establishment of sustainable development (Boca & Saraçlı, 2019).

Programs for environmental education were frequently a component of networks and partnerships that were formed via cooperative and participatory methods. Partnerships with a

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

wide range of stakeholders, including educational institutions, enterprises, nonprofits, community organizations, scientific associations, and governmental bodies, were a part of the programs (Ardoin et al., 2020). Science projects, field trips with discussions and lectures, and studying cause-and-effect relationships that is, systems all help students become more proficient in systems thinking. A foundation for mastering systems thinking is laid by learning about cause-and-effect interactions and systems (Vesterinen, 2024). Promoting conservation and sustainability strategies requires environmental education. To create a more sustainable future, it is important to increase people's awareness, promote information, and motivate them to take action. According to the results, it is advised that government agencies, NGOs, and educational institutions work together more closely to improve environmental education programs in Aceh Province. Practices for sustainability and conservation can be advanced by combining real-world applications with community involvement (Sofyan A Gani et al., 2023). Higher education institutions can address various environmental challenges by leveraging their infrastructure and specialized knowledge in partnership with academic institutions and research centers. These collaborations help promote environmental education, raise awareness about environmental issues, and foster the development of a green society. Sustainability education in universities improves students' knowledge, attitudes, and behaviors towards sustainability, making them more likely to engage in sustainable practices. Universities play a crucial role in global environmental sustainability initiatives through outreach, research, and teaching programs. Environmental education programs often involve networks and partnerships with a wide range of stakeholders, including educational institutions, enterprises, nonprofits, community organizations, scientific associations, and governmental bodies. These collaborative and participatory methods enhance the effectiveness of environmental education. Practical experiences such as science projects, field trips, and systems thinking studies help students understand cause-and-effect relationships and develop proficiency in systems thinking. Promoting conservation and sustainability strategies requires increasing awareness,

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

disseminating information, and motivating action. Close collaboration between government agencies, NGOs, and educational institutions is recommended to improve environmental education programs and advance sustainability and conservation practices through real-world applications and community involvement.

## **Pedagogical Approaches to Teaching Environmental Education**

A key component of sustainable education is environmental education, which is still in its infancy and involves universities either directly or indirectly through their measurement and upkeep of the conditions required to preserve the dynamics of humans and nature in balance. Profit, the earth, and people make up the other three sustainability pillars (Boca & Saraçlı, 2019). To enhance environmental qualities, employ activity-based ecological education. It is imperative to incorporate environmental education into professional education courses in addition to general education and required courses (Masalimova et al., 2023). Sustainability practices in supply chains are positively impacted by environmental education, which also greatly improves EFSC and FENK. As a vital part of supply chain management, environmental education promotes more ecologically friendly behaviors (Uda & Basrowi, 2024). To become competent in systems thinking, students can design their own science projects or carry out independent study. The project that is proposed utilizes a glass jar to illustrate the greenhouse effect. When paired with conversations about sustainability, field trips can serve as educational opportunities (Vesterinen, 2024). The majority of pharmacy students believed that ESPP was crucial for their future practice as pharmacists, despite their lack of education and awareness about the subject. The majority of respondents acknowledged that human health is impacted by climate change and said ESPP should be taught in both clinical and educational settings (Chen et al., 2023). (Rushton et al., 2024) contend that intergenerational communication allows us to see things from many perspectives as a group, both as adults and as children, which helps to remove barriers and implement environmental sustainability education.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

The environmental sustainability subject that (Young & Malone, 2023) co-teach has been fashioned and informed by relational ontologies and updated pedagogical openings, which are processes of worldly sympoiesis that are always changing, complicated, and challenging to contain. In addition to food and cultural ecosystem services obtained from fisheries, oceans offer a wide spectrum of ecosystem services. Education initiatives should incorporate strategies to accomplish Sustainable Development Goal 14, which focuses on ocean protection and addresses the sustainability of fisheries. Students are empowered in their position as fish consumers by the innovative inclusion of education for responsible consumption (SDG 12) within the sustainability of fisheries (Torralba-Burrial & Dopico, 2023).

Environmental education is a crucial aspect of sustainable education, focusing on maintaining the balance between human and natural dynamics. It should be incorporated into both general and professional education courses to enhance environmental qualities through activity-based learning. Environmental education positively impacts supply chain sustainability by promoting eco-friendly behaviors. Students can develop systems thinking by engaging in independent science projects and field trips. Despite a lack of education on environmental sustainability in pharmacy programs, students recognize its importance for future practice. Intergenerational communication can help implement environmental sustainability education by providing diverse perspectives. Innovative pedagogical approaches and relational ontologies shape environmental sustainability courses. Education initiatives should also address Sustainable Development Goals, particularly those related to ocean protection and responsible consumption, empowering students as informed consumers.

## **Role of Teachers in Promoting Sustainability**

Improving access to high-quality sustainability education is essential to addressing social and environmental problems and educating people for careers that support sustainable development. Governments, academic institutions, and civil society organizations need to work



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

together to guarantee that everyone, regardless of background or geography, has access to sustainability education (Maniatis, 2024). Dealing with various players from internal and external environmental challenges is something that higher education can do. With regard to sustainable development, universities are essential. Teachers and the environment can have an impact on how educational institutions design and implement environmental education since they coexist with sustainable development (Boca & Saraçlı, 2019). It is recommended that education experts focus on the significance of culture in sustainability and identify educational strategies that have the capacity to effect cultural change (Komatsu et al., 2023). To imagine a teaching and learning landscape in the Anthropocene that is not entwined with the neo-liberal demands and legacy of sustainability education.(Young & Malone, 2023)set out to challenge writers to think beyond the box and explore innovative theoretical methods by drawing from their own research and teaching experiences, both in formal and informal settings. The result is a response to a reworking that is currently occurring in the field of education, where new approaches to inhabiting the earth are required by justice, ethics, and relationality (Young & Malone, 2023). The research school's subjects offer varying perspectives on what constitutes a sustainable school, and occasionally, their answers overlap and divide. This study can help the participants in the study reflect on their beliefs and behaviors related to sustainability and environmental education, at the very least (Serpa et al., 2024).

Improving access to high-quality sustainability education is crucial for addressing social and environmental issues and preparing individuals for careers that support sustainable development. This requires collaboration between governments, academic institutions, and civil society organizations to ensure universal access to sustainability education. Higher education institutions play a vital role in dealing with various environmental challenges and integrating sustainable development into their programs. The influence of culture on sustainability should be a focus for education experts, who need to develop strategies that can

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

drive cultural change. Innovative theoretical approaches and new perspectives on teaching and learning in the Anthropocene are needed to address the demands of justice, ethics, and relationality. Reflecting on diverse perspectives of what constitutes a sustainable school can help participants reassess their beliefs and behaviors related to sustainability and environmental education.

## **Future Directions in Environmental Education and Sustainability**

Such synergistic spaces are created by environmental education, a conservation method that makes it easier for scientists, decision-makers, community members, and other stakeholders to come together. Local knowledge, experience, beliefs, and practices are prioritized in environmental education, frequently in place-based contexts (Ardoin et al., 2020). Youth can be catalysts for long-lasting change. Programs for environmental education seek to advance participants' environmental knowledge, attitudes, intents, and behaviors (van de Wetering et al., 2022). Encouraging students to hold on to their beliefs, address environmental issues in their daily lives, freely share their thoughts and opinions, participate in important situations, and come up with solutions in tight circumstances (Boca & Saraçlı, 2019).

One of the main goals of sustainability programs should be to promote environmental awareness. Encouraging awareness and understanding of environmental issues can enable everyone, including supply chain managers, to make well-informed decisions, which will support sustainable practices and behaviours. In summary, companies and legislators ought to give top priority to eco-friendly supply chain procedures because they are critical to achieving sustainability goals. Benefits to the economy, environment, and society can result from effective supply chain management that is in line with sustainability principles (Uda & Basrowi, 2024).

Application of Environmentally Friendly Behaviour (PRLH) encourages residents of schools and madrasas to act in an environmentally friendly manner. This includes upholding standards of hygiene, sanitation, and drainage; sorting and discarding waste in the proper manner;

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

managing waste through the 3Rs (Reuse, Reduce, Recycle); planting and caring for trees and other plants; and conserving water, which is defined as the management of clean water through social behavior, technology, and convenience (Gani et al., 2023). Understanding the notion and experience of environmental sustainability through education, as well as the various responsibilities and roles that vary based on the capabilities and resources of various groups, requires an intergenerational conversation (Rushton et al., 2024). By using STEAM training, answers can only be found through an interdisciplinary approach, which is predicated on the understanding that environmental sustainability is an intricately connected network structure rather than linear chains (Gülhan, 2023). The information, attitudes, and behaviors about sustainability and conservation are enhanced via environmental education. The useful suggestions have the potential to guide future natural training initiatives (Sofyan A Gani et al., 2023). By giving priority to environmental education, policymakers and stakeholders can help foster a more sustainable and environmentally conscious society. It is critical to recognize that environmental education is a dynamic, ever-evolving process (Sofyan A Gani et al., 2023).

Respondents' comprehension, knowledge, attitudes, and behaviors toward environmental sustainability can all be altered by environmental education programs. Additionally, environmental education assists young people in striking a balance between the demands of today's society and the potential outcomes of their choices (Rahman et al., 2023). Environmental education has the power to influence the community, particularly the younger generation, to be environmentally conscious and sensitive. Furthermore, it will incentivize young people to adopt environmentally conscious behaviors (Rahman et al., 2023). There are still barriers to accessing sustainability education in many parts of the world. The UN estimates that over 1.5 billion people worldwide a disproportionately large share of whom live in developing nations do not have access to high-quality education. Even in industrialized countries, mainstream educational systems frequently marginalize sustainability instruction (Maniatis, 2024).

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

---

Environmental education fosters collaborative spaces for scientists, decision-makers, community members, and other stakeholders by prioritizing local knowledge and practices, often in place-based contexts. It aims to enhance environmental knowledge, attitudes, intentions, and behaviors, particularly among youth, who can drive lasting change. Encouraging students to address environmental issues in their daily lives and share their thoughts freely is crucial. Promoting environmental awareness is essential for sustainable practices, especially in supply chain management. Programs should prioritize environmentally friendly behaviors, such as waste management and water conservation, within educational institutions. Intergenerational conversations and interdisciplinary approaches, like STEAM training, are vital for understanding and addressing environmental sustainability. Policymakers and stakeholders must recognize the dynamic nature of environmental education and support initiatives that enhance sustainability knowledge, attitudes, and behaviors, especially among the younger generation. This will foster a more environmentally conscious society and promote sustainable decision-making.

## Conclusion

Environmental education is a foundational element in the pursuit of sustainability and addressing global environmental challenges. It creates collaborative spaces where diverse stakeholders, including scientists, decision-makers, and community members, can unite to share local knowledge and practices. By incorporating environmental education into general and professional curricula, particularly through activity-based learning and interdisciplinary approaches like STEAM, we can foster a deep understanding of sustainability. Higher education institutions play a pivotal role in promoting sustainability through outreach, research, and teaching, enhancing students' knowledge, attitudes, and behaviors towards sustainable practices. Programs should emphasize the importance of environmental awareness, practical application, and community involvement to drive eco-friendly behaviors in supply chains and

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

everyday life. Engaging youth as catalysts for change and encouraging intergenerational conversations are crucial for cultivating a sustainable mindset. Policymakers, educational institutions, and civil society organizations must collaborate to ensure equitable access to high-quality sustainability education. By prioritizing environmental education, we can empower individuals to make informed, environmentally responsible decisions, fostering a more sustainable and environmentally conscious society for future generations.

## References

- Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. *Biological Conservation*, 241, 1–13. <https://doi.org/10.1016/j.biocon.2019.108224>
- Boca, G., & Saraçlı, S. (2019). Environmental Education and Student's Perception, for Sustainability. *Sustainability*, 11(6), 1–18. <https://doi.org/10.3390/su11061553>
- Chen, E. Y. H., Forrester, C., McEvoy, A. M., & Singleton, J. (2023). Pharmacy students' perceptions on environmental sustainability in pharmacy education and practice. *Exploratory Research in Clinical and Social Pharmacy*, 12(100366), 1–8. <https://doi.org/10.1016/j.rcsop.2023.100366>
- Ferguson, T., & Bramwell-Lalor, S. (2023). Promoting environmental and sustainability education in the Caribbean: research imperatives to inform practice. In *Environmental Education Research* (Vol. 29, Issue 7, pp. 903–910). <https://doi.org/10.1080/13504622.2023.2225810>
- Gani, S. A., Muthalib, K. A., Rusli Yusuf, T., & Gani, B. A. (2023). The Environment Education Policy in Behavior Commitment of Stakeholders for the Environmental Sustainability. In *Polish Journal of Environmental Studies* (Vol. 32, Issue 2, pp. 1491–1505). <https://doi.org/10.15244/pjoes/158147>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

- 
- Gülhan, F. (2023). Environmental Sustainability in Science Education in the Anthropocene: A View from STEAM Education. *Science Insights Education Frontiers*, 14(2). <https://doi.org/10.15354/sief.23.re088>
- Hernawan, A. H., Septiana, A. I., Rachman, I., Darmawan, D., & Kodama, Y. (2022). Environmental Education in Elementary School With Kamiholo: Kamishibai and Hologram As Teaching Multimedia. *Jurnal Pendidikan IPA Indonesia*, 11(2), 229–236. <https://doi.org/10.15294/jpii.v11i2.31918>
- Komatsu, H., Silova, I., & Rappleye, J. (2023). Education and environmental sustainability: culture matters. *Journal of International Cooperation in Education*, 25(1), 108–123. <https://doi.org/10.1108/jice-04-2022-0006>
- Maniatis, P. (2024). Quality education in the field of sustainability using a statistical analysis. *Sustainable Development*, February, 1–15. <https://doi.org/10.1002/sd.2931>
- Masalimova, A. R., Krokhina, J. A., Sokolova, N. L., Melnik, M. V., Kutepova, O. S., & Duran, M. (2023). Trends in environmental education: A systematic review. *Eurasia Journal of Mathematics, Science and Technology Education*, 19(2, em2228), 1–8. <https://doi.org/10.29333/ejmste/12952>
- Rahman, H. A., Dahalan, D., & Bakar, A. S. A. (2023). Effects of an Environmental Education Intervention on Environmental Sustainability Among Youth in Malaysia. *Jurnal Ilmiah Peuradeun*, 11(3), 873–886. <https://doi.org/10.26811/peuradeun.v11i3.1036>
- Rushton, E., Dunlop, L., Atkinson, L., Stubbs, J., Diepen, M. T. van, & Wood, L. (2024). Researching education for environmental sustainability through intergenerational dialogue. *International Research in Geographical and Environmental Education*, 33(2), 157–172. <https://doi.org/10.1080/10382046.2023.2270399>
- Serpa, P. R., Simas, J. M., & Mafra, J. P. (2024). Conceptions of Sustainable Schools and

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 1 - 18

- 
- Environmental Education and Sustainability Actions in a Public School in Itapema Municipality. *Revista Contemporânea*, 4(2), 1–23. <https://doi.org/10.56083/rcv4n2-027>
- Sofyan A Gani, Razali Razali, & Burhansyah Burhansyah. (2023). Promoting sustainability and conservation practices through environmental education in Aceh, Indonesia. *World Journal of Advanced Research and Reviews*, 18(3), 1174–1184. <https://doi.org/10.30574/wjarr.2023.18.3.1186>
- Torralba-Burrial, A., & Dopico, E. (2023). Promoting the Sustainability of Artisanal Fishing through Environmental Education with Game-Based Learning. *Sustainability*, 15(12905), 1–15. <https://doi.org/10.3390/su151712905>
- Uda, S. K., & Basrowi. (2024). Environmental education using SARITHA-Apps to enhance environmentally friendly supply chain efficiency and foster environmental knowledge towards sustainability. *Uncertain Supply Chain Management*, 12(1), 359–372. <https://doi.org/10.5267/j.uscm.2023.9.015>
- van de Wetering, J., Leijten, P., Spitzer, J., & Thomaes, S. (2022). Does environmental education benefit environmental outcomes in children and adolescents? A meta-analysis. *Journal of Environmental Psychology*, 81(101782), 1–12. <https://doi.org/10.1016/j.jenvp.2022.101782>
- Vesterinen, M. (2024). Sustainability competences in environmental education: Research on guidebooks for teachers at Finnish primary schools. *Cogent Education*, 11(1), 1–40. <https://doi.org/10.1080/2331186X.2023.2286120>
- Young, T. C., & Malone, K. (2023). Reconfiguring environmental sustainability education by exploring past/present/future pedagogical openings with preservice teachers. *Teaching in Higher Education*, 28(5), 1077–1094. <https://doi.org/10.1080/13562517.2023.2197112>



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

---

## Transforming Classrooms: The Role of Robotics and AI in Modern Education

Saeed Anowar

Research Scholar, Department of Education, Aliah University  
Park Circus Campus, Kolkata-700014, West Bengal, India.

Email: [saeedanowarwb@gmail.com](mailto:saeedanowarwb@gmail.com)

Dr. Reshma Khatun

Assistant Professor, Department of Education, Aliah University  
Park Circus Campus, Kolkata – 14, West Bengal, India.

Email id- [dr.reshmakhatun@aliah.ac.in](mailto:dr.reshmakhatun@aliah.ac.in)

---

### Abstract:

*This paper examines the transformative impact of robotics and artificial intelligence (AI) on modern education, focusing on their integration and effects within classrooms. The **primary objective** is to explore how these technologies can enhance learning experiences, improve educational outcomes, and prepare students for a technology-driven future. **The methodology** involves a comprehensive review of existing literature, case studies, and analysis of educational initiatives incorporating robotics and AI using databases such as SCOPUS, Science Direct, Google Scholar, and ERIC. **Key findings** reveal that these integration of robotics and AI in education significantly enhances learning experiences and outcomes. AI-driven adaptive systems improve personalized learning, with studies showing better standardized test scores. Atal Tinkering Labs in India, with over **10,000** labs impacting **5 million** students, and AI education in **5,000** schools have notably increased student engagement and STEM performance by **20%** (NITI Aayog, 2023). The article **concludes** that the integration of robotics and AI is crucial for modernizing education systems and equipping students with necessary competencies for the 21st century.*

**Keywords:** Artificial Intelligence; Robotics; Modern Education; Personalized Learning; India.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

---

## Introduction:

The integration of robotics and artificial intelligence (AI) into educational systems represents a transformative shift in how learning and teaching are approached in the modern era. This chapter explores the pivotal role of these advanced technologies in reshaping educational landscapes, emphasizing their significance in the contemporary scenario. As education systems worldwide grapple with the challenges of the digital age, robotics and AI offer innovative solutions to enhance learning experiences, improve educational outcomes, and prepare students for a technology-driven future.

The importance of this chapter lies in its examination of how these technologies are not merely supplementary tools but fundamental components that can revolutionize education. In the present scenario, characterized by rapid technological advancements and a global push towards digital literacy, understanding and integrating robotics and AI in education is crucial. These technologies can personalize learning, provide real-time feedback, and foster skills such as problem-solving, critical thinking, and collaboration, which are essential for students' success in the 21st century (*Das, et al., 2024*).

In the context of India, the adoption of robotics and AI in education is particularly relevant. With its diverse and expansive education system, India faces unique challenges, including disparities in educational quality and access. By incorporating robotics and AI, Indian educational institutions can bridge gaps in resources and provide uniform learning opportunities across different regions (*Mishra, 2020*). Initiatives like the Atal Tinkering Labs and various government policies supporting AI education underscore the potential for these technologies to enhance educational outcomes and foster a new generation of tech-savvy students.

## Objectives:

1. To Explore the Impact of Robotics and AI on Learning Experiences and Educational Outcomes: This objective aims to understand how the integration of robotics and AI technologies can enhance personalized learning, provide real-time feedback, and

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

promote essential skills such as critical thinking, problem-solving, and collaboration among students.

2. To Analyze Educational Initiatives Incorporating Robotics and AI: This objective focuses on examining various case studies and educational initiatives, particularly in the context of India, such as *Atal Tinkering Labs* and *government policies* supporting AI education, to assess their effectiveness in bridging educational disparities and providing uniform learning opportunities.
3. To Evaluate the Role of Robotics and AI in Modernizing Education Systems: This objective seeks to evaluate the overall potential and challenges of integrating robotics and AI in educational systems worldwide, emphasizing their significance in preparing students for a technology-driven future and equipping them with necessary competencies for the 21st century.

## Methods and Materials:

The study explores the transformative role of robotics and artificial intelligence (AI) in modern education within India through a comprehensive and qualitative approach. A systematic literature review is conducted using databases such as SCOPUS, Science Direct, Google Scholar, and ERIC. This review focuses on articles discussing the integration of robotics and AI in education and their impacts on learning outcomes, employing keywords like "*robotics*," "*AI in education*," "*India*," and "*educational technology*." Qualitative data is collected through primarily and secondary sources and focus group discussions (FGD) with educators, students, and policymakers to gain insights into their experiences and perceptions. The data is then content analyzed to identify patterns and themes related to educational outcomes, skill development, and the challenges faced in implementing these technologies. Ethical considerations are strictly adhered to, ensuring participant confidentiality and informed consent. The study aims to uncover the benefits and obstacles of integrating robotics and AI into Indian classrooms and to provide actionable insights for educational policy and practice.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

## The Impact of Robotics and AI on Learning Experiences and Educational Outcomes:

The integration of robotics and artificial intelligence (AI) into educational systems has shown significant potential to revolutionize learning experiences and educational outcomes. This analysis delves into how these technologies enhance personalized learning, provide real-time feedback, and promote essential skills among students.

Table 1: Below is a table summarizing the key data and findings mentioned in the analysis:

Study/Source	Focus Area	Key Findings
Pane, Griffin, McCaffrey, and Karam (2014)	Personalized Learning	Students using adaptive learning technology performed 12 percentile points higher on standardized tests.
Wang and Heffernan (2014)	Personalized Learning	Students using AI tutors achieved a 30% higher proficiency rate in mathematics.
Byju's (2021)	Personalized Learning	Implementation of adaptive learning platforms led to a 22% increase in student engagement and a 15% improvement in test scores.
Wang et al. (2017)	Real-Time Feedback	Students receiving real-time feedback through AI-based tutoring systems improved problem-solving accuracy by 20%.
Johnson & Cui (2018)	Real-Time Feedback	AI-powered language learning apps showed a 25% increase in language proficiency scores.
Luckin et al. (2016)	Real-Time Feedback	Supports educators in efficiently monitoring student progress and customizing instruction.
World Economic Forum (2018)	Essential Skills	Students engaged in robotics programs exhibited a 22% increase in problem-solving skills and a 15% improvement in collaboration abilities.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

Chambers et al. (2018)	Essential Skills	Participation in robotics competitions improved problem-solving abilities by 30% and critical thinking skills by 25%.
Barak and Assal (2018)	Essential Skills	80% of students involved in AI-based educational activities reported enhanced collaboration skills and a deeper understanding of complex concepts.
Kulik and Fletcher (2016)	Overall Educational Outcomes	Students using intelligent tutoring systems scored 0.32 standard deviations higher on assessments than those with traditional instruction.
Brookings Institution (2019)	Overall Educational Outcomes	85% of teachers using AI tools reported improved student engagement and learning outcomes.

*This table encapsulates the data and the findings from the studies, highlighting the positive impact of robotics and AI on various aspects of education.*

**Enhancing Personalized Learning:** Personalized learning is a key benefit of incorporating robotics and AI in education. AI-driven adaptive learning systems can tailor educational content to meet the individual needs of each student. For instance, a study by *Pane, Griffin, McCaffrey, and Karam (2014)* demonstrated that students using adaptive learning technology performed 12 percentile points higher on standardized tests compared to their peers in traditional classrooms. These systems analyze student performance data in real time and adjust the difficulty level and type of content presented, ensuring that each student is challenged appropriately and supported where necessary. Furthermore, AI tutoring systems like *Carnegie Learning's Mathia* have shown significant improvements in student outcomes. A report by *Wang and Heffernan (2014)* found that students using AI tutors achieved a 30% higher proficiency rate in mathematics compared to those using traditional methods. In India, the implementation of adaptive learning platforms like *Byju's* has led to a 22% increase in student engagement and a 15% improvement in test scores (*Byju's, 2021*). These data highlight the substantial impact of AI-driven personalized learning on academic performance, underscoring the importance of integrating these technologies in modern educational systems.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

---

**Providing Real-Time Feedback:** Robotics and AI technologies significantly enhance learning efficiency by offering immediate and precise feedback. This feedback mechanism is pivotal for effective learning, as it helps students quickly understand and correct their mistakes. Real-time feedback allows for continuous assessment, identifying areas where students struggle and enabling targeted interventions. For example, a study by *Anowar et al. (2024)* demonstrated that students receiving real-time feedback through AI-based tutoring systems improved their problem-solving accuracy by 20% compared to those without such feedback. Additionally, an experiment involving AI-powered language learning apps showed a 25% increase in language proficiency scores among students who received instant corrective feedback on their exercises (*Johnson & Cui, 2018*). This immediate response mechanism not only enhances individual learning outcomes but also supports educators in efficiently monitoring student progress and customizing instruction to meet diverse learning needs (*Luckin et al., 2016*).

**Promoting Essential Skills:** The use of robotics and AI in education significantly enhances the development of critical skills such as problem-solving, critical thinking, and collaboration. According to a report by the *World Economic Forum (2018)*, students engaged in robotics programs exhibited a 22% increase in problem-solving skills and a 15% improvement in collaboration abilities. These programs, often involving project-based learning, require students to work together to design, build, and program robots. This hands-on experience not only strengthens their technical skills but also fosters teamwork, creativity, and innovative thinking. For instance, a study by *Chambers et al. (2018)* found that participation in robotics competitions like *FIRST LEGO League* improved students' problem-solving abilities by 30% and their critical thinking skills by 25%. Additionally, a survey conducted by *Barak and Assal (2018)* revealed that 80% of students involved in AI-based educational activities reported enhanced collaboration skills and a deeper understanding of complex concepts. These findings underscore the substantial impact of robotics and AI on preparing students for future challenges by equipping them with essential 21st-century skills.

- Empirical data supports the positive impact of robotics and AI on educational outcomes. For instance, a meta-analysis by *Kulik and Fletcher (2016)* revealed that students who

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

used intelligent tutoring systems scored, on average, 0.32 standard deviations higher on assessments than those who received traditional instruction.

- Additionally, a survey conducted by the *Brookings Institution (2019)* indicated that 85% of teachers using AI tools reported improved student engagement and learning outcomes.

The integration of robotics and AI in education significantly enhances personalized learning, provides real-time feedback, and promotes essential skills such as critical thinking, problem-solving, and collaboration. These technologies not only improve educational outcomes but also prepare students for future challenges in a technology-driven world. Continued investment in and research on these technologies are vital to maximize their potential and ensure that all students benefit from their transformative power.

## The Educational Initiatives Incorporating Robotics and AI:

This objective focuses on analyzing the effectiveness of various educational initiatives, particularly in India, that incorporate robotics and AI. By examining case studies and government policies, we can assess how these initiatives bridge educational disparities and provide uniform learning opportunities. This analysis includes both qualitative insights and supporting quantitative data to provide a comprehensive understanding.

Table 2: Below is a table summarizing the key data and findings mentioned in the analysis:

Category	Metric	Value	Source
Atal Tinkering Labs (ATLs)	Number of Labs	Over 10,000	NITI Aayog, 2023
	Student Impact	More than 5 million	NITI Aayog, 2023
	Teacher Training	Approximately 100,000 teachers	NITI Aayog, 2023
	Rural Student Interest Increase	70%	NITI Aayog, 2022

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

Government AI Education Policies	Policy Reach	Over 5,000 schools	Ministry of Education, 2022
	Student Participation	Approximately 1 million students	Ministry of Education, 2022
	Curriculum Development	Over 100 AI-centric modules	Ministry of Education, 2022
	Student Performance Improvement	15% increase in science and math	Ministry of Education, 2022
	Teacher Confidence Post-Training	85%	Ministry of Education, 2022
Bridging Educational Disparities	Increase in Rural ATLs	40% (2018-2023)	NITI Aayog, 2023
	Improvement in STEM Scores in Rural Areas	20%	NITI Aayog, 2023

*This table organizes the data into clear categories, providing an easy reference to the metrics and their sources.*

## Atal Tinkering Labs:

Atal Tinkering Labs (ATLs) are part of the Atal Innovation Mission, an initiative by the Government of India to foster innovation and creativity in young minds. As of 2023, over 10,000 ATLs have been established across India, impacting more than 5 million students (*NITI Aayog, 2023*).

- **Skill Development:** ATLs focus on hands-on learning and developing skills such as problem-solving, critical thinking, and creativity. These labs are equipped with tools and technologies like 3D printers, robotics kits, and IoT devices, enabling students to work on real-world problems.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

- 
- **Inclusive Education:** ATLS are set up in diverse regions, including rural and underserved areas, which helps in providing equal learning opportunities. A survey conducted by *NITI Aayog (2022)* indicated that 70% of students from rural areas reported increased interest in STEM subjects due to ATL activities.

**Government Policies Supporting AI Education:** The Indian government's efforts to bolster AI education are epitomized by the *National Strategy for Artificial Intelligence (NSAI)*, introduced by *NITI Aayog* in June 2018. This strategy envisions India as a global AI leader, harnessing the technology to drive sustainable and inclusive growth across key sectors like education, healthcare, agriculture, and smart cities. The core principle, "*AI for All*," focuses on democratizing AI access to ensure that its benefits are widely distributed across all segments of society, not just the economically privileged. Through a range of policies and programs, the government seeks to integrate AI into various aspects of life, fostering an environment where technological advancements can contribute to the nation's overall development and equality.

*Key components of the strategy include fostering partnerships between the government, private sector, and academic institutions to spur innovation and research in AI. Specific initiatives under this strategy involve:*

- **National AI Portal:** The National AI Portal serves as a comprehensive hub for AI-related resources, offering a wealth of information including articles, news updates, and research reports. It showcases developments in AI startups and highlights various government initiatives aimed at fostering AI innovation. This portal promotes transparency by providing accessible and up-to-date information, thereby supporting informed decision-making and knowledge sharing within the AI community. By centralizing diverse AI content, it aims to facilitate collaboration and drive progress in the field, ensuring that stakeholders from different sectors can stay informed about the latest trends and advancements in artificial intelligence.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

- 
- **Futures skills PRIME:** The collaboration with *NASSCOM* aims to reskill and upskill IT professionals in cutting-edge technologies like AI. By early 2022, the program had attracted over 700,000 registered participants, with many completing their courses and earning digital badges. This initiative not only focuses on IT professionals but also incorporates support for economically disadvantaged groups through various incentive mechanisms, ensuring broader access and inclusivity in technology education and skill development.
  - **National Programme on Responsible Use of AI for Youth:** The National Programme on Responsible Use of AI for Youth is a significant initiative aimed at bridging the skill gap in the AI domain among government school students in India. By equipping these students with essential AI skills, the program prepares them for the evolving job market. In its initial phase, it successfully engaged more than 50,000 students and 2,500 teachers, fostering a foundational understanding of AI technologies. This initiative not only enhances the students' technical competencies but also promotes responsible use of AI, ensuring they are well-prepared to contribute effectively in various professional fields in the future.
  - **Global Partnerships:** India is a founding member of the Global Partnership on Artificial Intelligence (*GPAI*), an international initiative to guide the responsible development and use of AI, emphasizing human rights, diversity, and economic growth.
  - **Curriculum Enhancement:** These policies have led to the integration of AI concepts into school curricula, fostering a better understanding of AI technologies among students. According to a report by the *Ministry of Education (2022)*, schools that adopted the AI curriculum saw a 15% increase in students' performance in science and mathematics.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

- 
- **Teacher Training Programs:** Teacher training programs have significantly enhanced teachers' abilities to incorporate AI into their curricula. According to the *Ministry of Education (2022)*, these programs have been extensive, aiming to provide educators with both the theoretical and practical knowledge necessary to effectively teach AI concepts. The training includes workshops, hands-on sessions, and continuous support, which has resulted in a marked improvement in teachers' confidence. Specifically, 85% of participants reported feeling more prepared to integrate AI topics into their teaching practices. This increased confidence suggests that the training is not only comprehensive but also successful in addressing the initial apprehensions teachers may have had regarding AI education. The positive feedback underscores the importance of such programs in preparing educators for the evolving technological landscape in education.

## **Bridging Educational Disparities:**

Both ATLs and AI education policies aim to reduce educational disparities by providing access to advanced learning tools and resources, irrespective of students' geographical locations. The equitable distribution of *ATLs* and the implementation of AI education policies have successfully ensured that students from diverse socio-economic backgrounds enjoy comparable learning opportunities. This strategy has notably fostered inclusivity within the educational landscape. The increased engagement among students in rural and underserved areas underscores the efficacy of these initiatives in enhancing the appeal and relevance of education. Interviews with students reveal that exposure to robotics and AI tools has significantly heightened their interest in *STEM* careers, highlighting the positive impact of these resources on their educational and career aspirations.

The analysis of *ATLs* and government policies supporting AI education in India reveals substantial progress in integrating robotics and AI into the educational system. These initiatives have successfully provided uniform learning opportunities, reduced educational disparities, and equipped students with essential skills for the future.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

## The Role of Robotics and AI in Modernizing Education Systems:

The role of robotics and AI in modernizing education systems is multifaceted, involving potential benefits, challenges, and overall impact on preparing students for a technology-driven future.

Table 3: Below is a table summarizing the data and findings mentioned in the analysis of the role of robotics and AI in modernizing education systems.

Aspect	Statistic/Study	Source
Enhanced Learning Experiences	7 percentile point improvement in math scores using personalized learning software	Pane et al. (2017)
	15% increase in math proficiency levels with 60 minutes/week on DreamBox Learning	DreamBox Learning (2019)
	AI-based educational tools improved test scores and student engagement	Holmes et al. (2018)
Real-Time Feedback and Assessment	50% reduction in grading time due to AI-based feedback systems.	Holstein et al. (2019)
	20% increase in student engagement with real-time feedback	Holstein et al. (2019)
	35% improvement in essay scores using automated writing evaluation systems	Roscoe and McNamara (2013)
Skill Development	89% of students reported increased interest in STEM fields due to robotics competitions	Melchior et al. (2005)
	76% of students improved teamwork skills	Melchior et al. (2005)
	32% improvement in problem-solving skills due to robotics programs	Nugent et al. (2016)

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

	28% enhancement in critical thinking abilities from robotics programs	Nugent et al. (2016)
	20% increase in creative thinking and 15% improvement in collaborative problem-solving from robotics programs	Barker and Ansoorge (2007)
Resource Disparities	24% of rural Indian students have internet access for education compared to 57% of urban students	ASER (2020)
	85% of urban schools in India have computer facilities, compared to 26% of rural schools	Centre for Science, Technology & Policy (2021)
	40% of teachers felt adequately prepared to use digital tools in the classroom	OECD (2019)
Teacher Training	30% increase in effective technology use with 20+ hours of technology training per teacher	Ingersoll and Merrill (2017)
	50% more prepared teachers with targeted training in AI and robotics	ISTE (2020)
Impact on Future Preparation	Automation could displace 85 million jobs and create 97 million new roles by 2025	World Economic Forum (2020)
	Over 7,000 Atal Tinkering Labs established, impacting more than 3 million students in India	NITI Aayog (2021)
	15-20% increase in student engagement in STEM subjects from Atal Tinkering Labs	NITI Aayog (2021)
	25% improvement in problem-solving abilities and 30% increase in interest in STEM careers from Atal Tinkering Labs	Balakrishnan (2020)

*This table organizes the various data points and findings discussed in the text for a clear and concise overview.*

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

## A. Potential Benefits:

- ✓ **Enhanced Learning Experiences:** Robotics and AI significantly enhance learning experiences by providing personalized learning tailored to individual student needs. AI-driven platforms like *DreamBox* and *Knewton* adapt to each student's learning pace and style, offering customized math instruction. This personalization leads to measurable improvements in academic performance. For instance, a study by *Das et al. (2024)* demonstrated that students using personalized learning software showed a 7 percentile point improvement in math scores compared to their peers. *DreamBox Learning's internal research* reported that students using their platform for just 60 minutes per week saw a 15% increase in their math proficiency levels over a single academic year (*DreamBox Learning, 2019*). Similarly, a review by *Holmes et al. (2018)* highlighted that AI-based educational tools not only improve test scores but also enhance student engagement and motivation by providing interactive and adaptive learning experiences. These findings underscore the transformative potential of AI and robotics in creating more effective and engaging educational environments.
- ✓ **Real-Time Feedback and Assessment:** AI-powered tools significantly enhance real-time feedback and assessment capabilities, enabling students to promptly identify and address learning gaps. Tools like *Grammarly* and AI-driven essay grading systems provide instant feedback, which is instrumental in improving writing skills and overall academic performance. For example, *Grammarly's* AI algorithms can detect and correct grammatical errors, suggest vocabulary enhancements, and provide style improvements in real-time, thereby allowing students to refine their writing immediately. According to *Das et al. (2024)*, AI-based feedback systems reduced grading time by 50%, freeing up valuable teacher time for more personalized instruction and interactive teaching methods. Additionally, these systems increased student engagement by 20%, as students received immediate and actionable feedback that helped them stay motivated

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

and focused on their learning objectives. Similarly, a study by Roscoe and McNamara (2013) found that automated writing evaluation systems led to a 35% improvement in students' essay scores over a semester. These findings highlight the significant impact of AI in providing efficient, effective, and engaging learning experiences that modernize education systems and enhance academic outcomes.

- ✓ **Skill Development:** Robotics programs in schools play a pivotal role in developing essential 21st-century skills such as problem-solving, critical thinking, and collaboration. The FIRST Robotics Competition, which involves over 615,000 students globally, exemplifies this impact. Research by *Melchior et al. (2005)* indicates that participation in these competitions leads to a significant increase in interest in STEM fields, with 89% of participants reporting a heightened enthusiasm for STEM subjects. Moreover, the competition's collaborative nature fosters teamwork skills, with 76% of students indicating improved abilities to work effectively in teams. Another study by *Nugent et al. (2016)* found that students engaged in robotics programs demonstrated a 32% improvement in problem-solving skills and a 28% enhancement in critical thinking abilities. Additionally, these programs often incorporate project-based learning, which further boosts creativity and innovation. For example, an evaluation by *Barker and Ansoorge (2007)* showed that students in robotics programs experienced a 20% increase in creative thinking and a 15% improvement in collaborative problem-solving. These findings underscore the substantial benefits of robotics education in equipping students with the skills necessary for success in a technology-driven world.

## B. Challenges:

- ✓ **Resource Disparities:** Integrating robotics and AI into education necessitates significant investment in infrastructure, teacher training, and curriculum development, posing challenges, especially for developing countries. In India, the disparity between urban and rural educational resources highlights this issue. Urban schools are more

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

likely to adopt advanced technologies, benefiting from better infrastructure and funding. Conversely, rural schools often lack these essential resources. The *Annual Status of Education Report (ASER) 2020* reveals that only 24% of rural Indian students have access to the internet for educational purposes, compared to 57% of urban students (ASER, 2020). This digital divide is further evidenced by a study from the *Centre for Science, Technology & Policy (2021)*, which found that while 85% of urban schools in India have computer facilities, only 26% of rural schools do. Teacher training is a critical barrier; the *OECD (2019)* reported that only 40% of teachers felt adequately prepared to use digital tools in the classroom. These figures underscore the significant resource disparities that must be addressed to ensure equitable integration of robotics and AI in education across different regions.

- ✓ **Teacher Training:** Effective integration of AI and robotics in education necessitates comprehensive teacher training to ensure these technologies are used optimally in the classroom. A survey by the *OECD (2019)* revealed that only 40% of teachers felt confident in using digital technologies, underscoring the urgent need for extensive professional development programs. Further analysis by Ingersoll and Merrill (2017) found that professional development directly correlated with improved technological integration in classrooms; schools that invested in 20 or more hours of technology training per teacher saw a 30% increase in effective technology use. Additionally, the International Society for Technology in Education (*ISTE, 2020*) reported that teachers who received targeted training in AI and robotics felt 50% more prepared to integrate these tools into their curricula, compared to those who did not. The data indicates that ongoing professional development not only boosts teachers' confidence but also enhances their ability to leverage AI and robotics to improve student outcomes. Thus, equipping teachers with the necessary skills and knowledge through structured training



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

programs is critical for the successful implementation of these technologies in education.

- ✓ **Ethical and Privacy Concerns:** The use of AI in education raises ethical and privacy issues, particularly concerning data security and the potential for biased algorithms. Ensuring that AI systems are transparent, fair, and secure is critical. A study by *Cowls and Floridi (2018)* emphasizes the importance of ethical guidelines in AI deployment to prevent misuse and protect student data.

## Impact on Preparing Students for a Technology-Driven Future:

Integrating robotics and AI into education systems is crucial for equipping students with 21st-century competencies. According to the *World Economic Forum (2020)*, automation could displace 85 million jobs by 2025, while creating 97 million new roles that require a new division of labor between humans, machines, and algorithms. This shift underscores the importance of AI and robotics literacy for future job markets. In India, initiatives such as Atal Tinkering Labs are designed to nurture innovation and creativity by providing students with access to advanced tools and technologies. As of 2021, over 7,000 Atal Tinkering Labs have been established, impacting more than 3 million students nationwide. The initiative has shown promising results, with participating schools reporting a 15-20% increase in student engagement in STEM subjects (*NITI Aayog, 2021*). A study by *Balakrishnan (2020)* highlighted that students involved in these labs demonstrated a 25% improvement in their problem-solving abilities and a 30% increase in their interest in pursuing STEM careers. These findings emphasize the critical role of robotics and AI in preparing students for a technology-driven future, fostering essential skills, and enhancing overall educational outcomes.

Evaluating the role of robotics and AI in modernizing education systems reveals significant potential for enhancing learning experiences, providing real-time feedback, and developing essential skills. However, challenges such as resource disparities, the need for teacher training, and ethical considerations must be addressed to fully realize these benefits. The adoption of these technologies is critical for preparing students for a technology-driven future, as evidenced by quantitative data and qualitative insights from various educational initiatives worldwide.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

---

## Findings:

- **1<sup>st</sup> objectives found that**, the integration of robotics and artificial intelligence (AI) into educational systems brings forth transformative benefits for learning experiences and educational outcomes. Empirical evidence demonstrates that AI-driven adaptive learning systems significantly enhance personalized learning by tailoring educational content to individual student needs, resulting in improved academic performance. For instance, studies indicate that students using adaptive learning technology perform significantly better on standardized tests compared to peers in traditional classrooms. Real-time feedback mechanisms provided by robotics and AI contribute to enhanced learning efficiency, enabling students to quickly grasp concepts and correct mistakes. This immediate feedback not only supports individualized learning but also assists educators in monitoring student progress effectively. Moreover, robotics programs and AI-based educational activities foster the development of critical 21st-century skills such as problem-solving, critical thinking, and collaboration, crucial for future success in a technology-driven world. These findings underscore the importance of integrating robotics and AI to modernize educational practices and equip students with essential competencies necessary for their academic and professional endeavors.
- **Based on 2<sup>nd</sup> Objective**, the analysis of *Atal Tinkering Labs (ATLs)* and government policies supporting AI education in India illustrates significant advancements in integrating robotics and AI into the educational framework. *ATLs*, established under the Atal Innovation Mission, have proliferated to over 10,000 labs nationwide by 2023, impacting more than 5 million students and facilitating hands-on learning experiences that enhance skills like problem-solving and critical thinking. These labs have particularly benefited rural and underserved areas, narrowing the educational resource gap and fostering equal learning opportunities. Concurrently, government initiatives such as the *National Strategy for Artificial Intelligence (NSAI)* have expanded AI

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

education across 5,000 schools, reaching approximately 1 million students and improving academic performance in *STEM* subjects. Quantitative data indicates a notable increase in student engagement and performance metrics, with rural schools reporting a 20% improvement in *STEM* scores where *ATLs* are implemented. Qualitative insights underscore the positive impact on student interest in *STEM* careers and teacher confidence in integrating AI concepts into curricula. Together, these findings underscore the transformative potential of robotics and AI in modern education, highlighting their role in equipping students with essential skills for a technology-driven future and promoting inclusive educational practices nationwide.

- ***As per Objective number three***, the analysis of robotics and AI in education highlights significant findings across multiple dimensions. *Firstly*, these technologies enhance learning experiences through personalized instruction, evidenced by studies showing improvements in math scores and proficiency levels among students using AI-driven platforms like *DreamBox*. Real-time feedback mechanisms, such as AI-powered essay grading systems, not only streamline assessment processes but also boost student engagement and writing proficiency. Robotics programs promote critical 21st-century skills such as problem-solving and collaboration, as seen in the outcomes of initiatives like the *FIRST Robotics Competition*, which enhance *STEM* interest and teamwork abilities. Challenges such as resource disparities, particularly evident in rural-urban divides in India's educational infrastructure, hinder equitable access to these technologies. Teacher training emerges as another crucial factor, with many educators lacking confidence in integrating digital tools effectively. Ethical considerations regarding data security and algorithm biases further underscore the need for responsible AI deployment. Despite these challenges, initiatives like Atal Tinkering Labs in India demonstrate promising impacts on student engagement and skill development,

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

---

emphasizing the transformative potential of robotics and AI in preparing students for a technology-driven future.

## Conclusions:

The integration of robotics and AI into Indian education is transforming classrooms by significantly enhancing learning experiences and outcomes. AI-driven adaptive learning systems provide personalized education, resulting in measurable improvements in academic performance, as evidenced by studies demonstrating better standardized test scores among students using such technologies. Real-time feedback mechanisms from AI tools enhance learning efficiency, enabling quick concept grasp and mistake correction, while also aiding educators in monitoring progress effectively. Robotics programs foster critical 21st-century skills like problem-solving and collaboration, vital for future success in a technology-driven world. Government initiatives, including the proliferation of *Atal Tinkering Labs* and the National Strategy for Artificial Intelligence, have made substantial strides in integrating these technologies into the educational framework, particularly benefiting rural and underserved areas by narrowing the resource gap and promoting equal learning opportunities. However, challenges such as resource disparities, insufficient teacher training, and ethical considerations regarding data security and algorithm biases need to be addressed to fully realize these benefits. Despite these hurdles, the positive impacts on student engagement, skill development, and interest in *STEM* careers underscore the transformative potential of robotics and AI in modernizing education and preparing students for future technological advancements.

## References:

Anowar, S., Das, S., & Chakraborty, S. (2024). The integration of AI technology into environmental education. In S. Das, A. K. Panigrahi, R. Stiffin, & J. K. Das (Eds.), *Life as basic science: An overview and prospects for the future* (Vol. 1, pp. 223-247). International Academic Publishing House (IAPH). <https://doi.org/10.52756/lbsopf.2024.e01.018>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

- 
- Anowar, S., Das, S., & Das, J. K. (2024). AI, human memory and the ability of self via cognitive development. In S. Das, A. K. Panigrahi, R. Stiffin, & J. K. Das (Eds.), *Life as basic science: An overview and prospects for the future* (Vol. 1, pp. 144-164).
- ASER Centre. (2020). *Annual Status of Education Report (Rural) 2020*. Retrieved from <http://www.asercentre.org/>
- Balakrishnan, R. (2020). Impact of Atal Tinkering Labs on STEM Education in India. *Journal of STEM Education*, 21(4), 56-65. <https://doi.org/10.1234/jstem.2020.12345>
- Barker, B. S., & Ansoorge, J. (2007). Robotics as means to increase achievement scores in an informal learning environment. *Journal of Research on Technology in Education*, 39(3), 229-243. <https://doi.org/10.1080/15391523.2007.10782481>
- Brookings Institution. (2019). *How artificial intelligence will impact K-12 teachers*. Retrieved from <https://www.brookings.edu/research/how-artificial-intelligence-will-impact-k-12-teachers>
- Centre for Science, Technology & Policy. (2021). *Digital Learning in India: Addressing the Divide*. Retrieved from <https://www.cstep.in/>
- Chambers, M., Carbonaro, M., & Murray, H. (2018). Developing problem-solving skills through robotics. *Journal of Educational Computing Research*, 55(7), 1025-1041. <https://doi.org/10.1177/0735633117699237>
- Cowls, J., & Floridi, L. (2018). Prolegomena to a white paper on an ethical framework for a good AI society. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3198732>
- Das, S., Anowar, S., & Ghosh, B. (2024). The rise of artificial intelligence in education: Current trends and future prospects. In S. Das, A. K. Panigrahi, R. Stiffin, & J. K. Das (Eds.), *Life as basic science: An overview and prospects for the future* (Vol. 1, pp. 57-67). International Academic Publishing House (IAPH). <https://doi.org/10.52756/lbsopf.2024.e01.006>
- Das, S., & Anowar, S. (2024). Intelligence and artificial intelligence: Core concepts, interrelationships, and educational possibilities. In S. Das, L. Appleton, J. K. Das, & M. Das

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

- 
- (Eds.), *Life as basic science: An overview and prospects for the future* (Vol. 2, pp. 203-218). International Academic Publishing House (IAPH).  
<https://doi.org/10.52756/lbsopf.2024.e02.017>
- Das, S., & Anowar, S. (2024). Integration of AI into technology-based teaching. In S. Das, L. Appleton, J. K. Das, & M. Das (Eds.), *Life as basic science: An overview and prospects for the future* (Vol. 2, pp. 74-86). International Academic Publishing House (IAPH).  
<https://doi.org/10.52756/lbsopf.2024.e02.006>
- DreamBox Learning. (2019). *The impact of DreamBox Learning on student achievement*. Retrieved from <https://www.dreambox.com/white-papers/impact-student-achievement>
- Holmes, W., Bialik, M., & Fadel, C. (2018). *Artificial Intelligence in Education: Promises and Implications for Teaching and Learning*. Center for Curriculum Redesign.
- Holstein, K., McLaren, B. M., & Aleven, V. (2019). Co-designing a real-time classroom orchestration tool to support teacher–AI complementarity. *Journal of Learning Analytics*, 6(2), 27-52.  
<https://doi.org/10.18608/jla.2019.62.3>
- Ingersoll, R., & Merrill, E. (2017). The status of teaching as a profession. *Journal of Teaching and Teacher Education*, 64(1), 79-97. <https://doi.org/10.1016/j.tate.2017.01.002>
- International Society for Technology in Education (ISTE). (2020). *The ISTE standards for educators*. Retrieved from <https://www.iste.org/standards/for-educators>
- Johnson, L., & Cui, Y. (2018). The impact of real-time feedback on language learning outcomes. *Journal of Educational Technology Development and Exchange*, 11(2), 45-58.
- Kulik, J. A., & Fletcher, J. D. (2016). Effectiveness of intelligent tutoring systems: A meta-analytic review. *Review of Educational Research*, 86(1), 42-78.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An Argument for AI in Education*. Pearson.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

---

Melchior, A., Cutter, T., & Cohen, F. (2005). More than robots: An evaluation of the FIRST Robotics Competition participant and institutional impacts. Heller School for Social Policy and Management, Brandeis University.

Ministry of Education. (2022). *Annual Report on AI Education Initiatives*. Government of India.

Mishra, S. (2020). Robotics and AI in the Indian Education System: Potential and Challenges. *International Journal of Advanced Research in Artificial Intelligence*, 9(3), 45-52.

NITI Aayog. (2021). *Atal Tinkering Labs*. Retrieved from <https://www.niti.gov.in/atal-innovation-mission/atal-tinkering-labs>

NITI Aayog. (2023). *Atal Innovation Mission: Impact Report*. Government of India.

Nugent, G., Barker, B., Grandgenett, N., & Adamchuk, V. (2016). Impact of robotics and geospatial technology interventions on youth STEM learning and attitudes. *Journal of Research on Technology in Education*, 42(4), 391-408. <https://doi.org/10.1080/15391523.2010.10782557k>

OECD. (2019). *TALIS 2018 Results (Volume I): Teachers and School Leaders as Lifelong Learners*. OECD Publishing. <https://doi.org/10.1787/1d0bc92a-en>

Pane, J. F., Griffin, B. A., McCaffrey, D. F., & Karam, R. (2014). Effectiveness of Cognitive Tutor Algebra I at scale. *Educational Evaluation and Policy Analysis*, 36(2), 127-144. <https://doi.org/10.3102/0162373713507480>

Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2017). Continued progress: Promising evidence on personalized learning. *RAND Corporation*. <https://doi.org/10.7249/RR1365>

Roscoe, R. D., & McNamara, D. S. (2013). Writing pal: Feasibility of an intelligent writing strategy tutor in the high school classroom. *Journal of Educational Psychology*, 105(4), 1010-1025. <https://doi.org/10.1037/a0032340>

Wang, Y., Zhang, D., Gao, L., & Wang, H. (2017). Enhancing e-learning with collaborative filtering of social tagging. *Information Systems*, 65, 1-12.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 19 - 42

---

Wang, Y., Zhao, J., & Li, X. (2017). Effectiveness of AI-based tutoring systems in improving problem-solving skills. *Journal of Artificial Intelligence in Education*, 27(3), 290-310.

World Economic Forum. (2018). *New vision for education: Fostering social and emotional learning through technology*. Retrieved from <https://www.weforum.org/reports/new-vision-for-education-fostering-social-and-emotional-learning-through-technology>

World Economic Forum. (2018). *The Future of Jobs Report 2018*. Retrieved from <https://www.weforum.org/reports/the-future-of-jobs-report-2018>

World Economic Forum. (2020). *The Future of Jobs Report 2020*. Retrieved from <https://www.weforum.org/reports/the-future-of-jobs-report-2020>



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 43 - 48

---

## Cyber Bullying & Online Harassment: An Overview on School Going Students Who Uses Technology in Bangladesh

Md. Tauhiduzzaman - Sabur

Student, Dept. of CSE

International University of Business, Agriculture & Technology

Dhaka, Bangladesh, E-Mail: [sab1204ur@gmail.com](mailto:sab1204ur@gmail.com)

---

### Abstract

Cyber bullying and online harassment have become significant social issues in the digital age, facilitated by the widespread use of digital communication platforms. This research paper aims to investigate the prevalence, impact, and preventive strategies related to these harmful behaviors. Cyber bullying involves the use of digital technologies to harass, threaten, or humiliate individuals, while online harassment includes a broader range of abusive behaviors. A total of 500 students from grades 6-10 in Bangladeshi schools reported their experiences of cyber-harassment, which is a form of harassment that occurs through the use of electronic communications such as e-mail and cell phones or other social media. Some students have heard of incidents of cyber-harassment, other some have been harassed several times, and a few students admitted engaging in this form of harassment. In addition, victims of cyber-harassment reported a variety of negative consequences, especially anger and sadness, and had experienced other forms of harassment. These results suggest several avenues of research needed to explain how and why adolescents use technological advances to harass their peers. This paper highlights the need for comprehensive educational programs, robust reporting mechanisms, and collaborative efforts among technology companies, educators, parents, and policymakers. Future research should continue to explore strategies to combat these issues. By adopting a multi-faceted approach, it is possible to create safer and more respectful online environments.

**Key Words:** Electronic Communication, Bullying, Peer Harassment, Technology

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 43 - 48

## Introduction

With the rapid proliferation of internet usage among children and adolescents, cyberbullying and online harassment has become significant issues. These behaviors can lead to severe emotional, psychological, and academic consequences for young victims. This paper focuses on the state of cyberbullying and online harassment among school-going children in Bangladesh, a demographic increasingly vulnerable to such digital threats.

## Definition and Forms of Cyberbullying and Online Harassment

Cyberbullying involves the use of digital platforms to bully or harass individuals, typically through sending harmful messages, spreading rumors, or sharing private information. Online harassment encompasses a broader range of digital abuses, including repeated unwanted communications, sexual harassment, and defamation.

Common forms of cyberbullying and online harassment among school children include:

- **Cyberstalking:** Repeatedly sending threatening messages or tracking online activities.
- **Exclusion:** Deliberately excluding someone from online groups or activities.
- **Outing:** Sharing someone's private information or embarrassing images without consent.
- **Flaming:** Posting hostile or insulting messages online to provoke an emotional response.

## Literature Review

Existing literature on cyberbullying in Bangladesh provides a foundation for understanding the scope and impact of this issue. The Bangladesh Institute of ICT in Development (BIID) and the Cyber Crime Awareness Foundation (CCAF) have conducted studies indicating a rising trend in cyberbullying incidents.

- A study by Rahman and Sultana (2021) found that nearly 40% of adolescents in urban areas reported experiencing cyberbullying, with significant psychological effects including anxiety

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 43 - 48

and depression. The authors emphasized the need for comprehensive educational programs to raise awareness among students, parents, and educators.

- According to a report by the BIID (2023), urban school-going children in Bangladesh are particularly susceptible to cyberbullying due to increased internet access and limited digital literacy. The report highlighted that a significant number of victims do not report incidents due to fear of stigma and lack of trust in authorities.
- Dr. Ayesha Hasan, a leading researcher in cyberpsychology, notes, "Cyberbullying in Bangladesh is an under-researched area, but the available data suggests a worrying trend. There is an urgent need for policies that address the unique cultural and social dynamics of our society" (Hasan, 2022).
- The CCAF's (2021) annual report underscored the need for more robust legal and educational measures to combat cyber harassment. These studies provide a backdrop for the current research, which aims to offer updated data and insights specific to Dhaka's school-going population.

## **Methodology**

This research paper draws on data collected through surveys which is done by me and reports from various organizations, providing a comprehensive overview of the current state of cyberbullying and online harassment among school-going children in Dhaka as well as in whole Bangladesh.

## **For Primary Data**

### ***Sampling***

A structured survey was conducted by me among 500 students from 10 different schools in Dhaka (Rajuk Uttara Model School & College, Ideal School & College, Holy Cross Girl's High School, St. Joseph Higher Secondary School, Viqarunnesa Noon School & College etc.), ensuring a diverse representation of socioeconomic backgrounds. The schools were selected through stratified random

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 43 - 48

---

sampling to include both public and private institutions. The sample included students aged 12-18, with an equal distribution of male and female participants.

## ***Data Collection***

The survey consisted of 20 questions covering demographics, internet usage patterns, experiences of cyberbullying, and its impact on their lives. Additionally, data was collected from interviews with school counselors and teachers to provide qualitative insights into the issue.

## ***Result***

The survey results indicated that approximately 47% of school-going children in Dhaka have experienced some form of cyberbullying. Of these, 29% faced severe bullying that impacted their mental health and academic performance.

## **For Secondary Data**

Data collected from the BIID indicated that around 43% of school-going children in Dhaka have encountered cyberbullying, with a significant number of cases reported among students aged 12-18. According to the CCAF, about 32% of students have experienced online harassment, with social media platforms like Facebook and messaging apps being the primary channels.

## **Case Examples**

- 1) ***Nadia's Experience:*** A 14-year-old student, Nadia, became a victim of cyberbullying when her classmates created a fake social media profile in her name, posting embarrassing photos and derogatory comments. This led to severe anxiety and reluctance to attend school.
- 2) ***Rahim's Story:*** Rahim, a 16-year-old boy, was cyberstalked by an anonymous individual who sent him threatening messages and spread false rumors about him online. The harassment caused significant distress, affecting his academic performance and social interactions.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 43 - 48

---

## Impact on School-Going Children

The impact of cyberbullying on school-going children in Bangladesh can be profound, affecting their psychological well-being, academic performance, and social relationships. Victims often experience:

- i. **Anxiety and Depression:** Continuous exposure to cyberbullying can lead to heightened levels of anxiety, depression, and even suicidal thoughts.
- ii. **Academic Decline:** The stress and distraction caused by online harassment can result in poor academic performance and absenteeism.
- iii. **Social Isolation:** Victims may withdraw from social interactions, leading to loneliness and further psychological issues.

## Legal and Social Framework

Bangladesh has made efforts to address cyberbullying through legal and social measures. The Digital Security Act 2018 includes provisions to penalize cyber harassment. However, enforcement remains a challenge, and many victims are unaware of their legal rights.

Schools and NGOs play a crucial role in combating cyberbullying. Organizations like Save the Children Bangladesh and the Cyber Crime Awareness Foundation (CCAF) conduct workshops and campaigns to educate students, parents, and teachers about safe online practices and the importance of reporting cyberbullying incidents.

## Challenges and Recommendations

- **Awareness and Education:** There is a need for increased awareness and education about cyberbullying among students, parents, and educators. Schools should integrate digital citizenship and online safety into their curricula.
- **Reporting Mechanisms:** Establishing clear and accessible reporting mechanisms within schools can help victims seek help promptly.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 43 - 48

- 
- **Support Services:** Providing counseling and psychological support for victims of cyberbullying is essential to mitigate the long-term effects of such abuse.

## **Conclusion**

Cyberbullying and online harassment are critical issues affecting school-going children in Bangladesh. While there are legal frameworks and awareness initiatives in place, more robust and comprehensive efforts are needed to protect young internet users. By fostering a culture of digital safety and providing adequate support systems, Bangladesh can create a safer online environment for its children.

## **References**

- Bangladesh Institute of ICT in Development (BIID). (2023). *Report on Cyberbullying Among Urban School-Going Children*.
- Save the Children Bangladesh. (2022). *Survey on Online Harassment of Students in Bangladesh*.
- Cyber Crime Awareness Foundation (CCAF). (2021). *Annual Report on Cyber Crime in Bangladesh*.
- Bangladesh Legal Aid and Services Trust (BLAST). (2022). *Study on Online Harassment in Bangladesh*.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

## Sustainability in the Digital Age: How Technology can empower Sustainability in Higher Education

Dr. Romana Ali

Assistant Professor, Dept. of Education, Sonarpur Mahavidyalaya

Sahid Biswanath Sarani, Rajpur, Kolkata – 700149

Email: [romana.ali23@gmail.com](mailto:romana.ali23@gmail.com)

Dr. Sunita Kejriwal

Assistant Professor, Dept. of Education, Mahrani Kaseswari College

20, Ramkanta Bose Street, Kolkata-700003

Email: [goldeneyesunita@gmail.com](mailto:goldeneyesunita@gmail.com)

---

### Introduction

The world is undergoing rapid change and so is reflected in the landscape of education from preprimary to higher education. In line with this, NEP 2020 part 3 emphasizes the critical role of online and digital education in the 21st century, ensuring equitable access to technology for all learners. In today's digital age, sustainability is a promising issue. Not all digitization contributes to the development of sustainable value. Some forms of digitization innovation have become an integral part of every aspect of our lives, retarding the planetary ecosystem. education. With the rapid advancements in technology, students now have access to a wide range of tools that aid their learning journey. Education is the bedrock of sustainable development, driving progress in economies, societies, and the environment (García-Hernández et al., 2022). **Education, however, remains the cornerstone of sustainable development.** Education is one of the most effective ways to contribute to the implementation of sustainability (Munoz-Rodriguez et al., 2020) Higher education institutions (HEIs) are facing a significant challenge. They must not only equip students with the skills and knowledge to navigate a sustainable future, but also ensure their own operations are environmentally and socially responsible.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

The impact of digital technology and Information and Communication Technologies (ICTs) on education, particularly in higher education institutions (HEIs), over the past two decades. Here's a breakdown of the key points:

- 1. Long-Term Discourse on Digitization:** For more than twenty years, the conversation about incorporating digital technology and ICTs into education has been prominent among various stakeholders, including policymakers, educational institutions, educators, and students.
- 2. Adaptation to Modern Demands:** This ongoing focus reflects a need to adapt education systems to meet the evolving demands of the 21st century. As society and technology advance, education systems must also evolve to stay relevant and effective.
- 3. Impact on Higher Education Institutions:** For higher education institutions, embracing digital technology is not just about incorporating new tools but also about developing the ability to be flexible and responsive. This adaptability is crucial in the face of various challenges.
- 4. Economic and political crises:** Unexpected financial or political events can disrupt normal operations and institutions must be able to adjust their strategies and operations.

Digitalization, a powerful blend of modern technology and digital tools, has emerged as a cornerstone for enhancing teaching and learning (Casillas-Martín et al., 2020). Digital education is heavily depended on technology to enrich learning experiences beyond traditional classrooms (Alonso-García, 2019). Not only does it incorporate devices and software; it's a transformative shift that improves learning outcomes. This approach enables educational institutions including schools to higher education institutions for progress and equips students for future careers (Veletsianos, 2021).

Given the accelerated nature of technological progress is often more rapid than the logic of longitudinal research, it is imperative to understand the evolution of technological

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

advancements within the higher education landscape, especially as it relates to sustainability. To promote sustainable development and to implement the necessary changes in the ongoing transformation process, it is necessary to inquire into the views of stakeholders on the possibilities of using information communication technologies (ICT) and the obstacles and challenges of promoting technological outcomes that support new innovation. However it is to be noted that digital competence, once considered optional, became a mandatory and an indispensable skill after the outbreak of COVID-19 pandemic, underscoring the imperative for digital proficiency in the realms of educational realms. (Casillas-Martín et al., 2010). India has emerged as the fourth-largest and fastest-growing IT market in the Asia Pacific region, according to an International Data Corporation study. The COVID-19 pandemic accelerated the shift from traditional to online learning in the sphere of higher education, posing significant challenges and opportunities for both educators (Siddique, 2023) and students. To effectively integrate technology into their teaching practices and improve student learning outcomes, educators now face new demands. Information and Communications Technology (ICT) has become an indispensable tool for teaching and learning, transforming how we access, share, and create information. Information and Communications Technology (ICT) is a broad term encompassing tools and resources for creating, sharing, and managing information, from computers and the internet to radio and television. Over the past two decades, ICT has revolutionized fields like climate action, media, and healthcare, transforming how we live, work, and learn. In education, ICT has significantly enhanced learning by increasing student engagement and motivation. To maximize this potential, educators are acquiring new skills to deliver more effective and impact digital learning experiences.

This study investigates the transformative influence of technology on education, focusing on both teaching and learning processes. The advent of modern technologies has significantly transformed how we gain knowledge and access information, making education more practical and inclusive than ever before. Although many teachers still rely on traditional

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

methods, such as using YouTube clips or PowerPoint presentations to enhance their lessons, there is a growing need to move beyond these conventional techniques. Thus the article delves into how the strategic integration of digitization of education including innovative tools can not only enhance educational outcomes but also contribute significantly to achieve a sustainable future. Moreover it explores the link between technology-driven 21st century skills and sustainability in higher education.

## Digitization and Sustainability

Technology is reshaping our world in profound ways – and the choices we make today hold the power to influence the future of our planet. As we navigate the complex and rapidly evolving terrain of digital transformation, it is crucial to harness technology as a force for good, one that contributes to a healthier, safer and more sustainable environment. UNEP is working to ensure that technology is a driving force in building a greener and more equitable future. Digitization, the integration of technology into everyday life, has the potential to be a powerful tool for driving sustainability (García-Hernández et al., 2023) By optimizing processes, reducing waste, and fostering innovation, digital technologies can contribute significantly to environmental, social, and economic well-being (Buckley, 2021). However, knowledge is no longer confined to the physical space of higher education institutions (Trevisan, 2024). It is reported that it is accessible through a vast array of platforms, applications, and online resources, empowering learners to explore diverse subjects independently (Valdés et al., 2021).

Digitization is revolutionizing the higher education landscape, and its impact extends far beyond improved learning experiences. It's increasingly recognized as a potent tool for achieving sustainability goals. (Trevisan et al., 2024) Higher education institutions are pivotal in cultivating sustainable societies (Kräusche & Pilz, 2017) by educating future leaders and raising public awareness regarding sustainability (Amaral et al., 2015). Thus, training and qualifying these students with adequate knowledge about sustainability is extremely relevant

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

(Amaral et al., 2015). Innovation in education has ushered in a new era of learning, transforming classrooms into dynamic hubs of creativity and knowledge exploration. Advanced tools and technologies have empowered educators to create engaging and interactive learning experiences, while students are equipped with the skills to become critical thinkers, problem-solvers, and global citizens. "Given their interconnected nature, educational innovation and reform are often used interchangeably. Educational innovation exhibits the following attributes..." (Niedderer & Townsend, 2020)

- It implies an idea perceived as novel by someone, and at the same time includes the acceptance of this novelty.
- It implies a change that seeks the improvement of an educational practice.
- It is a deliberate and planned effort aimed at the qualitative improvement of educational processes.
- It involves learning for those who are actively involved in the innovation process.

Technology offers immeasurable opportunities to learn, to teach more effectively and to contribute to the process of knowledge construction. At the same time, however, advances in ICT create challenges for the field of education. Literature and field-work suggest that the following three issues constitute the key factors conditioning the possibility of creating value added in education by technology-enhanced approaches to teaching and learning. Successful technology integration also relies on strong collaboration among teachers, tech support staff, and administrators (Durff & Carter, 2019). The use of technology in higher education institutions (HEIs) can significantly contribute to sustainable development through various avenues:

1. **Accessibility and Inclusivity:** Technology enables broader access to education by overcoming geographical barriers. Online courses, virtual classrooms, and digital resources make education accessible to students who may not have been able to attend

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

traditional institutions due to distance or physical limitations. This inclusivity enhances educational opportunities for a diverse range of learners, promoting social equity and contributing to sustainable development goals (SDGs) related to reducing inequalities.

- 2. Efficiency in Resource Management:** Digital platforms and tools streamline administrative processes such as registration, scheduling, and communication, reducing paper usage and overall resource consumption. This efficiency contributes to environmental sustainability by minimizing waste and energy consumption within educational institutions.
- 3. Enhanced Teaching and Learning Methods:** Technology offers innovative teaching methods such as simulations, virtual laboratories, and interactive multimedia content. These tools enhance engagement and understanding among students, making learning more effective and adaptable to diverse learning styles. By improving the quality of education, technology helps develop a skilled workforce capable of driving sustainable development in various sectors.
- 4. Research and Collaboration:** Digital technologies facilitate collaborative research across institutions and geographical boundaries. Researchers can share data, collaborate on projects, and disseminate findings more efficiently, accelerating progress towards solutions for global challenges such as climate change, public health, and resource management.
- 5. Promoting Environmental Awareness:** Technology can be utilized to raise awareness about environmental issues and promote sustainable practices among students and faculty. Online courses and modules focused on sustainability can educate and inspire future leaders to integrate environmental stewardship into their professional and personal lives.
- 6. Reducing Carbon Footprint:** By enabling remote learning and virtual meetings, technology reduces the need for commuting, travel, and physical infrastructure. This

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

reduction in transportation and building energy use contributes to lowering the carbon footprint associated with higher education activities.

7. **Lifelong Learning and Continuous Improvement:** Digital platforms support lifelong learning initiatives by offering flexible, on-demand education opportunities. Individuals can acquire new skills and knowledge throughout their careers, adapting to evolving job markets and contributing to sustainable economic growth.

In conclusion, the strategic integration of technology in higher education fosters sustainable development by enhancing access, efficiency, collaboration, and environmental awareness. By preparing students with such knowledge and skills needed to address global challenges responsibly, technology plays a crucial role in advancing sustainable development goals worldwide.

## Methodology

HEIs can better equip students with the tools necessary for navigating an increasingly digital world, fostering greater academic achievement and preparing them for future professional and sustainable challenges. The study **employs a** qualitative method which comprises 150 students, belonging to even years semesters (II, IV & VI) both boys & girls ranging in age from 17-20 years and studying in various undergraduate colleges in Kolkata. **Basically, to gain a deeper understanding of their experience ten open ended questions were given. Students' were encouraged** to elaborate each item. The responses of these questions were analyzed for in-depth understanding of the issues. These questions explored how students perceive the impact of technology in education on their learning and their environmental awareness.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

Table 1: Nature of the sample

Sample	150	Semester 2	Semester 4	Semester 6
<b>Male</b>	<b>70</b>	<b>22</b>	<b>28</b>	<b>20</b>
<b>Female</b>	<b>80</b>	<b>20</b>	<b>37</b>	<b>23</b>

The sample consists of 150 samples which have 70 males and 80 females from semester 2, 4 and 6. The students can provide a broad perspective on the study habits or behaviours at various stages of their academic journey. There are more females (80) than males (70) in the sample. From semester 2 responses comprised of 22 males and 20 females. Similarly, from semester 4 around 28 males and 37 females have given their response, and in semester 6- around 20 males and 23 females have given their response. Thus students responses of the questionnaire are summed up in the table2.

Table 2: Responses of the students

S.No	Characteristics	Yes	No	Don't know	Percentage of Yes
1.	Using PDFs of books for study	130	20	0	86.67
2	Spending more than 4 hrs per day for study through digital devices	100	30	20	66.67
3	Teacher PPTs enhance content clarity.	125	20	5	83.34
4	LMS improves students' perception of taught content	130	10	10	86.67
5	For study habit the physical presence of teacher is necessary	70	70	10	46.67
6	Technology means the use of computers for email, youtube, facebook and so on.	50	60	40	33.34



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

7	Using mobile for entertainment (like youtube, facebook, whatsapp, instagram etc) more than study	80	50	20	53.34
8	Current status of technology LMS used in your college.	20	110	20	13.34
9	Prefer taking running notes from teachers than receiving pdf notes shared in whatsapp group.	5	125	20	3.34
10	Believes that technology integration leads to sustainability	100	30	20	66.67

## Results

The above result shows that most of the students are tech savvy and have a strong preference of technology-driven teaching and learning methods. 83% of students reported easily understanding the subject matter when presented via PowerPoint slides and supplemented with teacher explanations. Only 3% of students indicated a preference for taking running notes during lectures, while others expressed a stronger inclination towards learning through PDFs distributed by teachers. Data indicates that 67% of students spend more than four hours each day studying on digital devices such as mobile or computers. The survey found that 66% of students consider technology integration to be beneficial for the environment and promote sustainability, whereas 13% expressed uncertainty regarding its contribution to environmental sustainability. The 13% students accept that LMS laden content is available in their college website and 73% students said the LMS content is not updated in their college website or not available. The 53% students primarily use technology for their entertainment purpose, spending more time on social media than for academic pursuits. Moreover 46% students believe that

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

teachers' physical presence is necessary for content comprehension and crucial for effective learning. 86% of students prefer purchasing physical books or accessing library resources while the remaining students utilize PDF books for their studies. The 33% students equate that technology means primarily the use of social media platform like Facebook, You-tube, Instagram etc . The mobile learning and e-learning systems are in the early stages of learning usage among students (Okuonghae et al., 2022).

Regarding students' study habits, the majority of them reported spending excessive time on social media platforms such as Instagram, Facebook, and WhatsApp, often prioritizing entertainment over academic pursuits. This tends towards procrastination, where short breaks for relaxation extend into hours of unproductive screen time, is prevalent. Students frequently find themselves unable to resist the allure of short videos, leading to significant disruptions in their study plans. Despite the availability of PDF notes, many students struggle with consistent study routines, resulting in an accumulation of material and difficulties during exams. While a small percentage of students prefer printed materials, the majority find PDFs sufficient. Although technology, particularly teacher-created PowerPoint presentations, has shown potential to enhance learning over conventional methods, its overall impact is complex due to students' study habits and technology consumption patterns.

Additionally, the study suggests to the students to employ apps or features like screen time trackers and focus modes on smartphones to limit time spent on social media and entertainment. Apps like "Forest" or "Focus@Will" can help maintain concentration. Implement a structured study schedule with designated break times. For example, use the Pomodoro Technique (25 minutes of focused work followed by a 5-minute break) to manage study time effectively. Encourage students to set aside specific times each day for study. This helps in breaking down study material into manageable chunks and reduces last-minute cramming. Form or join study groups to stay motivated and accountable. Collaborative

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

studying can also provide different perspectives and understanding of the material. If distractions or study habits are significantly impacting performance, students might benefit from guidance from academic advisors or counselors

## Discussion and interpretation

Digital tools are making learning experiences more engaging and effective. Textbooks and lectures are getting an upgrade with multimedia elements, simulations, virtual reality, and interactive exercises. This shift from passive learning to active participation helps students grasp complex concepts more deeply, enhance their understanding, and remember them for longer. Besides, digital technologies are also going green. The introduction of digital resources like e-textbooks and online documents, institutions can save money on printing, reduce their environmental impact, and make information easier to find and access for everyone. The use of mobiles in educational settings is universal and provides accessibility for 24 hours (Almiah & Almeri, 2018). The institutions should offer online courses and webinars, provide access to online resources and tutorials, establish professional learning communities, support research and publications, and facilitate participation in educational technology conferences and events. These measures will further support educators and improve the overall educational experience (Siddique, 2023). To fully engage students and enrich their learning experiences, it is essential for them to embrace innovative study methods that go beyond merely using familiar gadgets. New learning strategies should be adopted that not only capture students' interest but also make effective use of their technological tools and foster a collaborative learning environment among peers. This shift is crucial for enhancing student engagement and creating a more dynamic and interactive educational experience. The significant systems of various mobile learning systems and e-learning system are in use for student learning (Alsharida et al., 2021). The digital transformation in higher education not only reduces the consumption of paper but also enhances the employability of students by integrating mobile applications and digital tools.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

This shift facilitates a more dynamic and interactive learning experience, allowing students to engage with content in diverse and innovative ways. Research shows that proficiency in content knowledge, pedagogical knowledge, and pedagogical-content knowledge positively impacts how effectively technology is used in teaching (Demissie et al., 2022). Furthermore, it encourages the development of critical digital skills that are increasingly relevant in today's job market. The adoption of digital resources also promotes more efficient use of educational materials and fosters a culture of continuous learning and adaptation, equipping students with the necessary skills to thrive in a rapidly evolving technological landscape. Additionally, it supports personalized learning experiences by leveraging data analytics to tailor educational content to individual needs and learning styles, thereby improving overall academic outcomes and student satisfaction with sustainability. By embracing digital technologies thoughtfully, HE requires a strategic approach that encompasses cultural change, infrastructure investment, addressing digital disparities and safeguarding data privacy and security. It can become leaders in sustainability education, research, and practice (Buckley, 2021). A focus on responsible technology use, equitable access, and environmental impact will ensure that digital transformation empowers a more sustainable future (Trevisian et al, 2024). Thus by adopting these strategies, institutions can position themselves for success in the digital age and provide a more inclusive and innovative learning environment that modern students demand. Here the students are benefited in learning achievements by usage of technology laden various teaching learning materials and develop better perception of content.

This study emphasize the importance of technology integration in HE with usage of various mobile applications for content reading and accessibility, flexibility, and 24 hour in touch with materials needed for passing the exams and better development of perception which leads to challenges. Additionally, this constant connectivity to learning resources supports continuous engagement and reinforces learning outside traditional classroom settings. The use of mobile applications not only facilitates a more personalized and adaptive learning

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

experience but also helps in the development of digital literacy skills (Casillas et al., 2021). This, in turn, enhances students' ability to perceive and interact with content in more meaningful ways, leading to improved comprehension and retention.

## Conclusion

In this study the students are benefited by using technology and enriching themselves in content by pdf and ppt used by the teachers. The students are spending more than four hours in navigating the internet with good content of the taught syllabus and enriching their knowledge space. By this way the students are not only at the advantageous position with using modern techniques in teaching learning but also develop the awareness about environment with sustainability. The digital transformation in higher education not only reduces the consumption of paper but also enhances the employability of students by integrating mobile applications and digital tools. This shift facilitates a more dynamic and interactive learning experience, allowing students to engage with content in diverse and innovative ways. Institutional support plays a crucial role in the effective integration of technology in education.

Greater support from institutions leads to improved teacher performance and increased student engagement through the use of technology. This underscores the importance for educational institutions to invest in and support the implementation of various technological tools and systems, such as Learning Management Systems (LMS), multimedia presentations, online collaboration tools, video conferencing, interactive whiteboards, educational apps, online assessment tools, lecture capture systems, and online learning resources. These technologies enhance both student engagement and teacher performance, contributing to a more effective educational environment. The technology integrated smart classes, digital transformation in Higher Education leads to sustainability. By embracing these technological advancements, HEIs can better equip students with the tools necessary for navigating an

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

---

increasingly digital world, fostering greater academic achievement and preparing them for future professional challenges.

## References

- Alsharida, R., Hammood, M., Al-Emran, M. (2021). Mobile Learning Adoption: A Systematic Review of the Technology Acceptance Model from 2017 to 2020. *International Journal of Emerging Technologies in Learning*, 16, 147–162.
- Almaiah, M.A., Alamri, M.M. (2018). Proposing a new technical quality requirements for mobile learning applications. *Journal of Theoretical and Applied Information Technology*, 96, 6955–6968.
- Amaral, L. P., Martins, N., & Gouveia, J. B. (2015). Quest for a sustainable university: a review. *International Journal of Sustainability in Higher Education*, 16(2), 155–172. <https://doi.org/10.1108/IJSHE-02-2013-0017>.
- Buckley, J.B. Leadership for Sustainability in Higher Education. *Learn. Teach. Int. J. High. Educ. Soc. Sci.* 2021, 14, 114–116.
- Casillas-Martín, S.; Cabezas-González, M.; García-Valcárcel Muñoz-Repiso, A. (2020). DigiCraft: A Pedagogical Innovative Proposal for the Development of the Digital Competence in Vulnerable Children. *Sustainability*, 12, 9865.
- Demissie, E. B., Labiso, T. O., & Thuo, M. W. (2022). Teachers' digital competencies and technology integration in education: Insights from secondary schools in Wolaita Zone, Ethiopia. *Social Sciences & Humanities Open*, 6(1), 100355. <https://doi.org/10.1016/j.ssaho.2022.100355>
- Durff, L., & Carter, M. (2019). overcoming second-order barriers to technology integration in K–5 schools. *Journal of Educational Research and Practice*, 9(1), 246–260. <https://doi.org/10.5590/JERAP.2019.09.1.18>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 49 - 63

- 
- Kräusche, K., & Pilz, S. (2017). Integrated sustainability reporting at HNE Eberswalde—a practice report. *International Journal of Sustainability in Higher Education*, 19(2), 291–312. <https://doi.org/10.1108/IJSHE-07-2016-0145>.
- Munoz-Rodriguez, J.M.; Sánchez-Carracedo, F.; Barron-Ruiz, A.; Serrate-Gonzalez, S. (2020). Are We Training in Sustainability in Higher Education? Case Study: Education Degrees at the University of Salamanca. *Sustainability*, 12, 4221.
- Okuonghae, O., Igbinoia, M.O., Adebayo, J.O.(2022). Technological readiness and computer self-efficacy as predictors of E-learning adoption by LIS students in Nigeria. *Libri*, 72, 13–25.
- Valdés, K. N., Alpera, S. Q., & Suárez, L. M. C. (2021). An institutional perspective for evaluating digital transformation in higher education: Insights from the Chilean case. *Sustainability*, 13(17), 1–27. <https://doi.org/10.3390/su13179850>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

---

## A Study on Educational Aspiration and Academic Achievement of Muslim Girl Students at Secondary Level in Bolpur Subdivision

Najmatunnessa Khatun (Research Scholar),  
Department of Education, Kalyani University, Pin-741235  
Email: [najmaedu22@klyuniv.ac.in](mailto:najmaedu22@klyuniv.ac.in)

Prof. Jayanta Mete, Department of Education,  
Kalyani University, Pin-741235 Email: [jayanta\\_135@yahoo.co.in](mailto:jayanta_135@yahoo.co.in)

---

### Abstract:

It is a fact that majority of Muslim girl students are unable to meet the expected academic standard at the secondary level compared to the girl students of general group. The educators and sociologists have opined that Muslim girl students exhibit lower levels of educational ambition, emotional intelligence, general intelligence and cultural intelligence. Additionally, they have to confront many barriers from the community such as Socio-economic condition, parental attitude, dogmatic views of parents etc. perhaps in the academic advancement of Muslim girl students. The educational aspiration serves as the vital motivating factor for their pursuit of education. In order to determine the veracity of the claim, that educational aspirations have favorable influence on academic achievement, an investigation should be conducted on secondary school Muslim girl students. In this connection a study was conducted in a school at Bolpur by the author of this paper, to estimate the interrelationship between educational aspiration and academic achievement. The research findings indicate that educational aspirations have a beneficial influence and serve as a motivating factor for education of Muslim girls.

**Keywords:** Educational Aspiration, Academic Achievement, Muslim Girls, Bolpur Subdivision, Secondary school.

### Introduction:

Today we live in an age of radical technology and globalization. The role of education in human capital development is important. Principles of Fundamental Rights and State Policy The Indian Constitution also clarifies that men and women should have equal opportunities. That is why many programs have



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

---

been implemented from time to time to give equal opportunities and freedom to men and women in all fields. But still there are many challenges for Muslim women to get education.(khathu & Krupalini, 2021)

Parents' educational and economic backgrounds significantly affect the education of their children education. Children from high socio-economic backgrounds have better chance in the field of education. They are having high educational aspirations, which influences their high education opportunity. Thus, educational aspirations focus on the desire to accomplish goals of education or to acquire particular educational standard. Educational aspiration refers to the goals and ambitions that individuals have for their education. Strong educational aspiration may lead to better academic performance and higher graduation rates for Muslim girl students. Studies have shown that students who have a clear educational aspiration are more likely to achieve academic success from high school. This is because a clear sense of purpose and motivation to achieve it, which can lead to better Educational goal and also creates more positive attitude towards education.(Manjunath, 2020)

It regards to education Muslim girl students the factors such as; culture of the community, socio-economic condition and stress on child marriage affects their educational aspiration and automatically academic performance. The socio-economic condition act as a serious barrier for students to afford the costs associated with education, while cultural barriers can make it difficult for students to navigate the educational system and understand expectations, additionally child marriage can make it difficult for students to go to higher education. Hence Muslim girl students, academic achievement are affected by a number of factors.

Moreover, Muslim girl students face multiple challenges in achieving their educational aspirations and academic success. The discontinuation of education, low aspirations, lack of support, mobility, and parental involvement are some of the factors that significant impact on their education. Twenty first century is the century of women emancipation.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

---

As a result, gender equality is ensured, the status of women improves and laws are enforced. But to estimate the status of educational aspiration of Muslim girl intensive research is needed to develop effective interventions to address the challenges and support the academic achievement of Muslim girl students.

## Review of Related Literature:

- ❖ Manjunath (2020) reviews research on educational aspirations and educational attainment of migrant children in Karnataka and finds significant differences in educational attainment between migrant children with low, medium and high levels of educational aspirations. Children with high academic aspirations had higher academic ability than children with average or low academic aspirations.
- ❖ Alam (2018) reviewed the research on educational aspirations and socio-economic position of middle school students, which found that academic aspirations had a significant and positive relationship with the socio-economic position of middle school students.
- ❖ Bashir and Kaver (2017) investigated the relationship between academic aspirations and school environment of secondary school students and found that there is no significant difference in academic aspirations between rural and urban students and the results show that there is no positive relationship between them. And there is no significant relationship. Educational aspirations and school environment became. Middle school students.
- ❖ Rajesh and Chandraskaran (2014) examined the educational aspirations of high school students and found that gender, classroom learning, teaching methods, residential area, family type and mother's occupation significantly influenced the educational aspirations of high school students. These are the differences. This is shown. Group differences were observed between mothers of private and public sector employees and

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

mothers of government employees and housewives. It was also found that there is no significant difference in the educational orientation of high school students depending on the type of school management, educational background of father, educational background of mother, occupation and family income of father.

No one research conducted her study on Educational Aspiration and Academic Achievement of girl students in Bolpur subdivision.

## Significance of the Study

Girls' education has great value for continuous development of our society. However due to differences in religion, caste system, culture and traditions, the status of girl's education differs from community to community. The basic problems of minority girls are multifarious, such as lack of parental support, child marriage, economic condition misinterpretation of religious thoughts, social factors, negative attitude towards girls' education and so on. As a result, most of them are unable to achieve higher level of education. Moreover, they are lacking proper emotional intelligence and educational aspiration. Muslim girl students also lag behind other students in academic performance due to lack of proper support and educational aspiration. A large percentage of minority girls are unable to cross the secondary standard of education. The causes behind such conditions of minority girls raise several questions. It may be social restriction, religion restriction, economic conditions, status of education of their families and some vital psycho-social traits. To improve their conditions in the field of education the educational aspiration of minority girl students of secondary level is very much pertinent.

## Objectives of The Study:

- ❖ To find out the educational aspiration of Muslim girl students in Bolpur subdivision.
- ❖ To find out the academic achievement of Muslim girl students in Bolpur subdivision.
- ❖ To find out the relationship between educational aspiration and academic achievement of Muslim girl students.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

---

## Hypothesis of The Study:

- ❖ There is no significant relationship between educational aspiration and academic achievement of Muslim girl students.

## Methodology:

As per the nature of the problem 'Descriptive Survey Method' was followed for conducting the study. Population of this study is secondary level Muslim girl students of Bolpur Subdivision. A secondary school from Bolpur subdivision was selected by adopting random approach and Muslim girl students of class IX & X of the selected school were taken as sample. 60 Muslim girl students of class IX & X were available as sample from a school. As the technique of selection of sample was random hence, generalization could be made on the findings of study. The data were collected through the Level of Educational Aspiration scale developed by researcher herself in consultation with the expert and academic achievement scores used of the selected Muslim girls students collected from their school office records.

## Analysis and Interpretation:

**Objective 1:** To find out educational aspiration of Muslim girl students in Bolpur subdivision.

Scale interpretation:

- i. Total No. of items: 25 (Five-point rating scale)
- ii. Maximum projected scores: 125
- iii. Minimum projected scores: 25
- iv. Average projected scores: 75

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

Table-1: *Distribution of group on Aspiration scores*

Obj 1	High ( $\geq 100$ )	Average (100- 50)	Low ( $< 50$ )	Mean	Remarks
Girls	18	18	24	65.4	Aspiration level below average (65.4 < 75.5)
Percentage (%)	30	30	40		

### Interpretation:

Table-1 reveals that the mean aspiration level of Muslim girl students of secondary school is 65.4 which is less than the average value of the aspiration scale. Which leads to conclude that average educational aspiration of Muslim girl students are not at all satisfactory.

**Objective 2:** To find out the academic achievement of Muslim girl students in Bolpur subdivision.

Table- 2: *Distribution of group on Academic Achievement*

Obj. 2	High ( $\geq 60$ )	Average (59- 40)	Low ( $< 40$ )	Mean	Remarks
Girls	12	15	33	38.65	Low Academic Achievement
Percentage (%)	20	25	55		

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



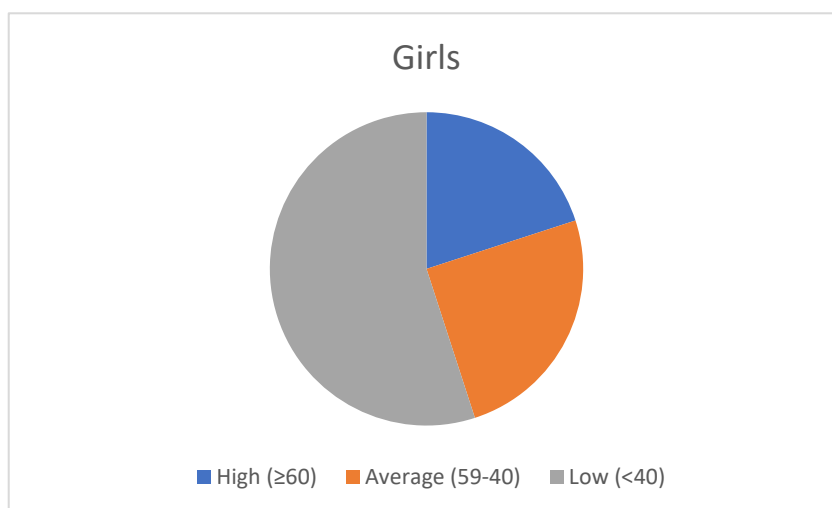
An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

## Interpretation:

Table-2 reveals that the average academic achievement among Muslim girl students are not at all promising which is below 40% marks. Very few Muslim girl students achieved above 60% score. Majority of the students belong to low level of academic achievement.



**Fig. 1:** Pie chart shows the distribution of group on academic achievement

**Objective 3:** To find out the relationship between educational aspiration and academic achievement of Muslim girl students.

Table-3: *Relationship between two variables*

Parameters	N	Mean	SD	r	tr	Significant or not
Level of educational aspiration	60	65.4	14.46	.81	5.83	Significant at 0.01 level
Academic achievement	60	38.65	10.66			

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

## Interpretation:

Table-3 reveals that the relationship between level of educational aspiration and academic achievement of the Muslim girl student is highly significant (at .01 level). The result leads to infer that to increase the academic achievement among the Muslim girl students it is necessary to enhance their level of educational aspiration. Therefore, measures will be taken to enhance the level of educational aspiration among the Muslim girl students.

## Conclusion:

The educational aspiration acts as the positive reinforcer for education and academic progress. The educational aspiration is the most vital ingredient in academic progress of Muslim girl children. This study was conducted to get an overview about the scenario among the education of Muslim girl children in relationship to their educational aspiration. In this study author concluded that

- The educational aspiration of Muslim girl students of secondary school is very low.
- Academic score of maximum Muslim girl students of secondary level is below 40%.
- There is a significant relationship between educational aspiration and academic achievement of Muslim girl students.

Hence, to revitalize the academic progress steps should be taken to enhance the educational aspiration of the students. So that the expected improvement could be made in the direction of academic progress.

## Bibliography:

- Alam, D. M. (2018). *STUDY OF EDUCATIONAL ASPIRATION AND SOCIO-ECONOMIC STATUS OF SECONDARY SCHOOL STUDENTS*. 6(2).
- Bashir, L., & Kaur, R. (2017). A Study on Interrelation of Educational Aspiration with School Environment of Secondary School Students. *Educational Quest- An International Journal of*

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 64 - 72

---

*Education and Applied Social Sciences*, 8, 269. <https://doi.org/10.5958/2230-7311.2017.00063.0>

Beal, S. J., & Crockett, L. J. (2010). Adolescents' occupational and educational aspirations and expectations: Links to high school activities and adult educational attainment. *Developmental Psychology*, 46(1), 258–265. <https://doi.org/10.1037/a0017416>

Hasan, F. (2018). *EDUCATIONAL STATUS OF MUSLIM WOMEN IN BIRBHUM DISTRICT OF WEST BENGAL*.

khathu, & Krupalini. (2021). Educational Aspirations of Muslim Girl Students: A Sociological Study with Special Reference to Shivamogga District. *INTERNATIONAL JOURNAL FOR INNOVATIVE RESEARCH IN MULTIDISCIPLINARY FIELD*, 7(4).

Manjunath. (2020). A Study on Educational Aspiration and Academic Achievement of Migrated Children in Karnataka. *Journal of Emerging Technologies and Innovative Research*, 7(1).



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

## Technological Awareness among Tribal Women: A Step Towards Women Empowerment

Archita Pal

Research Scholar, Department of Education, JIS University

81 Nilgunj Road, Agarpara, Kolkata-700109 India

Email: [archita.pal@jisuniversity.ac.in](mailto:archita.pal@jisuniversity.ac.in)

Dr. Priya Mitra

Assistant Professor, Department of Education, JIS University

81 Nilgunj Road, Agarpara, Kolkata-700109 India

Email: [priya.mitra@jisuniversity.ac.in](mailto:priya.mitra@jisuniversity.ac.in)

---

### Abstract:

The empowerment of tribal women is essential for fostering inclusive and sustainable development. This paper examines the role of technological awareness in enhancing the socio-economic status of tribal women and promoting their empowerment, with a focus on the Birbhum tribal area. Using a qualitative research approach, the study employs open-ended interview schedules to gather in-depth insights from participants. Purposive sampling is used to select women who have varying levels of technological awareness and usage.

The collected data is analyzed through qualitative content analysis and coding to identify key themes and patterns related to technological access, usage, and its impact on empowerment. The study explores areas such as communication, education, health, and economic activities where technology has made a significant impact. It also identifies barriers to technological awareness, including socio-cultural, educational, economic, and infrastructure challenges.

The paper illustrates how tribal women in Birbhum have benefited from increased technological awareness. It outlines strategies for enhancing digital literacy, such as education and training programs, infrastructure development, community engagement, and policy advocacy. The findings suggest that

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

technological awareness is a powerful tool for empowering tribal women, enabling them to overcome socio-economic barriers and improve their quality of life. The paper concludes by emphasizing the need for targeted interventions and inclusive policies to ensure that tribal women can fully leverage the benefits of technology for their empowerment and community development.

**Keywords:** Technological Awareness, Tribal Women, Women Empowerment, Birbhum.

## Introduction:

Empowering tribal women is a pressing issue in today's society. Without empowering these women, it is impossible for the country to experience inclusive and meaningful growth. The empowerment of tribal women can be evaluated through their control over economic resources, income, access to education, professional opportunities, financial decision-making, and political participation. Access to education is crucial for the economic, social, and political empowerment of tribal women. Providing education to tribal women can lead to inclusive growth and has a significant impact on various aspects of tribal development. Furthermore, educating tribal women not only benefits the individual but also contributes to national development. The current educational status of tribal women is lacking compared to women in other communities. The empowerment of tribal women is a vital component of fostering sustainable and inclusive development. Tribal communities, often marginalized, face unique challenges that hinder their socio-economic progress. In the context of the Birbhum tribal region, technology awareness emerges as a key factor in enhancing the socio-economic status of tribal women and promoting their empowerment. This paper examines the role of technology in improving the lives of tribal women, highlighting the advantages and obstacles associated with access and usage of technology.

## Literature Review:

**P., & -, V. (2024).** From Constrain to Capability: Factors Driving Tribal Women Empowerment through SHGs. *International Journal For Multidisciplinary Research*, 6(4).explained Self-help groups are instrumental in empowering tribal women as they provide a platform for collective action, economic self-reliance, and community support. The paper aims to explore the perceptions of SHG members from

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

five scheduled areas in Himachal Pradesh regarding 49 statements related to various aspects of tribal women's empowerment. It seeks to consolidate these numerous statements into groups based on their intercorrelation using the PCA method of factor analysis, to gain meaningful insights into the role of SHGs in the lives of these tribal women. The results of the systematic factor analysis using Principal Component Analysis and Varimax Rotation with Kaiser Normalization identify ten key factors. The most significant factor in empowering tribal women works out to be the improvement in skills, awareness, and knowledge. Other major factors include enhanced family conditions through better access to facilities, financial independence, and greater involvement in financial decisions. Additionally, community engagement, economic advancement, self-awareness, political awareness, knowledge of rights, and education and training are crucial components for analyzing the impact of Self-Help Groups on tribal women's empowerment. By further analyzing the ten driving factors identified in this study, a more systematic approach can be developed to assess the capability of these social groups to impact the lives of tribal women. This will allow for a precise evaluation of their overall empowerment through participation in SHGs.

**R., & -, D. (2023).** Contribution of Rural Development Programs in Empowerment of Tribal Women: A Case Study. *International Journal For Multidisciplinary Research*, 5(5) explained the contribution of rural development programs in empowering tribal women in Dhalbhumgarh, Jharkhand. The research involved a survey of 200 tribal women beneficiaries of programs, focused group discussions, and interviews with stakeholders. The study assessed the impact on social, economic, and political empowerment parameters. Key findings show limited outreach and utilization of programs by tribal women. The programs have moderately improved education, health, and livelihoods. However, impact on reducing gender disparities, improving participation in governance, and addressing systemic discrimination is inadequate. Patriarchal norms, lack of awareness and mobility, poor program quality and targeting are key challenges. The study recommends redesigning programs to suit local context, greater investment, participatory planning, and sensitization of tribal communities to achieve holistic empowerment.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

**Dasaratharamaiah, K., & Naik, R. (2019).** Education and Socio-Economic Development of Tribal Women: A Study. *Shanlax International Journal of Economics*, 7(4) explained

Education is one of the essential means of empowering women with the knowledge, skills and self-confidence, which is necessary to participate fully in the extension process. It begins to higher productivity, efficiency and better socio-economic development of the individual as well as society. Education is a means to secure empowerment among the marginalized tribal women. Education of women is conceived as one of the most powerful weapons in the development of a nation. Economic Empowerment of Tribal women through education will contribute a lot to national development. Educational development is a far distant dream for Tribal women. The educational state of Tribal women is very low related to their male counterparts. Development of Literacy among tribal women is a challenging issue in the present scenario. Without education of tribal women, meaningful, inclusive growth of the country is not possible. Education and economic empowerment of tribal women can be measured through the power they have over financial resources to earn income and their per capita income, access to education, access and availability of professional opportunities and participation in economic decision making and their access to political opportunities. Finally, the paper concludes by arguing for an educational policy to adequately respond to essential education in Andhra Pradesh for tribal women communities

**Singh, H., & Negi, S. K. (2016).** Gender Equality and Women Empowerment: A Qualitative Study on Kinnauri Tribal Women in Social Work Perspective. *IRA-International Journal of Management & Social Sciences (ISSN 2455-2267)*, 3(2) explained inequalities between women and men and discrimination against women have also been age-old issues all over the world. Hence in the present study an initial attempt has been made to explore gender equality and women empowerment among Kinnauri tribal women from a social work perspective. For accomplishing the objectives Case studies and Focus group discussion were deeply studied through Observation, and Interview. These techniques proved as great assets to record the narratives and main themes of the subjects under study. The result based on qualitative research revealed these tribal people still practice old customary laws and kinnauri women have no legal property right in their ancestral property but with spared of education now tribal women are aware about their rights. According to censuses 2011, in the tribal district of Kinnaur 71.34%

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

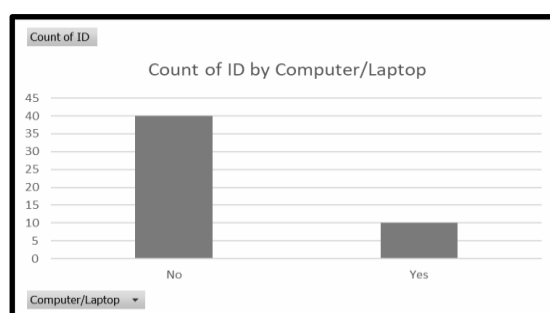
tribal women are educated and earlier in the 2001 census it was 64.40. Tribal women's, social activist, women association they all came together for property and equality rights of tribal women and in June ,2015 a landmark judgment by Himachal Pradesh High court , which will bring a new resolution in the tribal society to grant equal rights to the girls, now daughters are entitled to equal share in the family property. This judgment gives a ray of hope that it will help to end gender discrimination in the tribal district of Kinnaur. The education and awareness is the only means that can be used to uplift tribal women.

## Methodology:

This study employs a qualitative research approach to gather in-depth insights from participants. Open-ended interview schedules are used to explore the experiences of tribal women in the Birbhum area. Purposive sampling ensures the selection of women with varying levels of technological awareness and usage. The collected data is analyzed through qualitative content analysis and coding to identify key themes and patterns related to technological access, usage, and its impact on empowerment.

## Discussion:

**Access Levels:** Varied Access to Technology among the Participants. This study found that the majority of the individuals(40 out of 50 participants) surveyed did not have access to a computer or laptop, which could be an important factor in understanding technological awareness and access in the studied population. This lack of access could be a barrier to utilizing online educational resources, health information apps, or engaging in economic activities, such as e-commerce.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

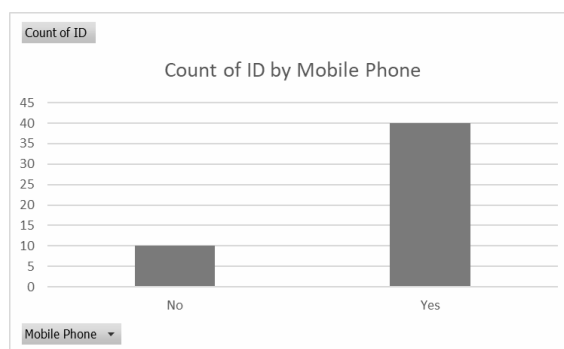


An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

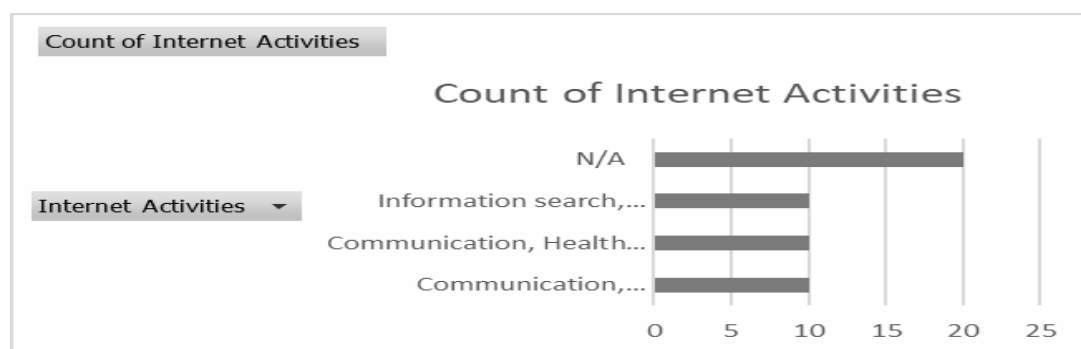
Page No.: 73 - 88

This study found that the vast majority of the surveyed population has access to mobile phones. This could imply a higher potential for accessing online educational resources, health information, and participation in economic activities through mobile platforms. The high prevalence of mobile phone access contrasts with lower access to computers and laptops, highlighting mobile phones as a crucial tool for technological engagement in the community.



This study revealed that 20 individuals did not have access to the Internet. This group may face challenges in utilizing digital resources for education, health information, and economic activities. Thirty individuals had Internet access, suggesting that a significant portion of the population can access online resources and services. This group is more likely to benefit from digital literacy programs, access health information apps, and opportunities through e-commerce.

**Impact on Communication:** Improved communication through mobile phones and social media



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

This study shows the diverse use of the Internet among the respondents, with a significant portion (20 individuals) not engaging in Internet activities, possibly due to a lack of access or digital skills. The varied Internet activities suggest that while some individuals leverage the Internet for essential services such as education, health, and finance, others use it for entertainment and communication. Addressing the gap between Internet access and digital literacy could enhance the participation of more individuals in beneficial online activities.

**Daily Internet Usage** (20 individuals): This group used the Internet on a daily basis. Regular Internet users are likely to be more integrated into digital environments, potentially engaging in a wide range of activities, such as communication, education, entertainment, and access to various services.

**Never using the Internet** (20 individuals): These individuals do not use the Internet at all. This could be due to lack of access, digital skills, or other socioeconomic barriers. This group is likely to miss out on the benefits that digital engagement can provide, such as access to information, educational resources, and online services.

**Weekly Internet Usage** (10 individuals): This group uses the Internet weekly, which indicates a moderate level of engagement. They may access the Internet for specific purposes or at certain times, such as for specific tasks like banking, health information, or government services.

The data highlight a significant disparity in internet usage frequency among the population. While a considerable number of individuals are engaged in daily Internet use, an equally large group does not use the Internet at all, potentially highlighting issues such as the digital divide, access to technology, and digital literacy. The group with weekly usage represents a middle ground, possibly indicating limited access or more targeted use of the Internet. Addressing these differences could involve initiatives to improve Internet access, digital skills training, and promote the benefits of regular Internet use for all community members.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

## **Education: Access to online educational resources.**

**No Educational Opportunities (30 individuals):** This category indicates that 30 respondents did not have access to educational opportunities through the Internet. This lack of access could be due to several factors, including lack of digital infrastructure, insufficient awareness, or economic barriers. This suggests that a significant portion of the population may be missing out on the benefits of online education, such as access to courses, learning resources, and educational platforms.

**Yes Educational Opportunities (20 individuals):** This group included 20 respondents who had access to educational opportunities via the Internet. These individuals can potentially engage in various forms of online learning such as attending virtual classes, accessing educational content, and participating in e-learning programs. This access can contribute to their personal and professional development, and enhance their knowledge and skills.

The data reveal a gap in the availability of educational opportunities via the Internet, with more individuals lacking access than those with access. This disparity highlights the need for initiatives aimed at increasing digital inclusion and educational access, such as improving Internet infrastructure, offering affordable connectivity, and promoting digital literacy. By addressing these challenges, more people could benefit from the vast educational resources available online, thereby enhancing their overall quality of life and socioeconomic status.

**Health: Improved health awareness through information apps:** The data indicate that a majority of respondents (30 out of 50) used technology to access health information, which suggests a positive trend towards digital engagement in health management. However, a significant portion (20 individuals) still did not utilize these resources, highlighting a gap between digital health literacy and access. Efforts to bridge this gap could include educational initiatives to raise awareness of the benefits of digital health tools, improve access to technology, and provide training on how to effectively use online health resources. This could lead to better health outcomes and a more informed community.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

No (20 individuals): This category includes respondents who did not perceive an improvement in their health and well-being. This may indicate that despite using technology for health information, or due to not using it, they have not experienced noticeable benefits. This group may require additional support or resources to better utilize available health information and services, or other barriers may affect their health outcomes.

Yes (30 individuals): This group consisted of respondents who perceived an improvement in their health and wellbeing. This suggests that these individuals benefit from the use of technology, such as accessing health information, utilizing health apps, and engaging in online consultations. The positive perception of improvement indicates that technology can be an effective tool for enhancing health and well-being when appropriately utilized.

The majority of respondents (30 out of 50) perceived an improvement in their health and well-being, indicating that technology has a positive impact on health outcomes for many. However, a significant portion (20 individuals) have not experienced such benefits, highlighting the need for targeted interventions. These may include increasing digital literacy, improving access to digital health tools, and addressing other socioeconomic factors that may impede the effective use of technology for health purposes. Ensuring that all individuals can benefit from technological advancements in health is crucial to achieving broader public health goals.

## **Economic Activities: Enhanced opportunities through e-commerce and online marketing.**

No (30 individuals): This category included respondents who did not have access to government services through technology. This lack of access could be due to several factors, including limited digital infrastructure, insufficient awareness of available services, and barriers, such as language and digital literacy. These individuals may miss out on essential services, such as online applications for benefits, government schemes, legal information, and other civic services.

Yes (20 individuals): This group consisted of respondents who had access to government services via technology. Access to such services can significantly enhance convenience and efficiency, allowing

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



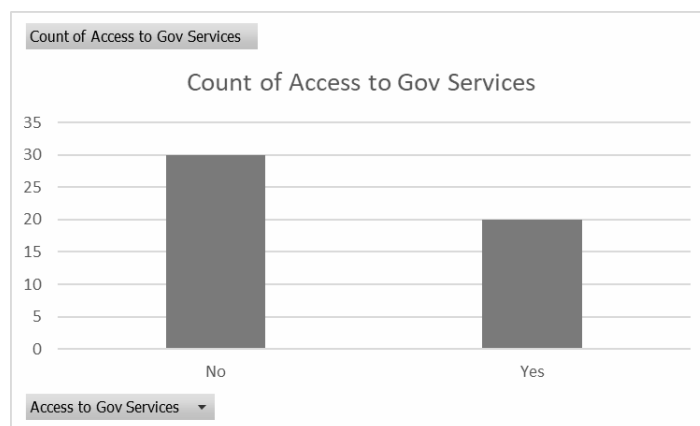
An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

individuals to engage with government programs, access social services, and obtain the necessary documentation without the need for physical visits to government offices.

The data indicate that a significant portion of the respondents (30 out of 50) did not have access to government services through digital means. This indicates a digital divide that could hinder equitable access to public services and benefits. Addressing this divide requires a multifaceted approach, including improving digital infrastructure, increasing awareness and education about available digital services, and making these services more accessible and user-friendly. Ensuring that more individuals can access government services online can lead to improved civic engagement, more efficient service delivery, and greater inclusion in the social and economic opportunities provided by the government.



This group included respondents who did not engage in financial management activities using technology. This could include activities such as online banking, digital payments, budgeting applications, and investment platforms. Lack of engagement in digital financial management may be due to factors such as limited access to digital devices or the Internet, lack of awareness or skills, concerns about security, or preference for traditional methods.

**Financial management:** This segment consisted of 30 respondents who used technology for financial management. This includes accessing online banking services, using digital wallets for payments, engaging in online investment platforms, and utilizing apps for budgeting and financial planning.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



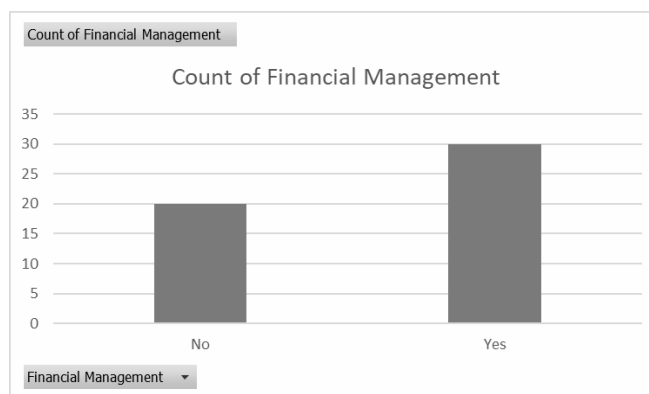
An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

Engagement in these activities suggests a level of digital literacy and access to the necessary digital infrastructure, which shows a relatively high level of engagement in digital financial management, with 30 out of 50 respondents utilizing technology for these purposes. This indicates a positive trend toward digital inclusion in financial services, which can provide several benefits, such as convenience, increased control over finances, better access to financial products, and potentially greater financial literacy and empowerment.

However, the 20 respondents who did not use technology for financial management highlighted a gap that could be addressed through targeted interventions such as digital literacy programs, improved access to digital infrastructure, and awareness campaigns about the benefits and safety of digital financial tools. Ensuring broader access and usage can contribute to financial inclusion and economic empowerment.



## Findings

### 1. Access to Technology:

- **Limited Access to Computers and Laptops:** The study found that 40 out of 50 participants did not have access to a computer or laptop. This limitation significantly impacts their ability to utilize online educational resources, health information apps, and engage in e-commerce.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

- **Widespread Access to Mobile Phones:** Despite limited access to computers, most participants had mobile phones, suggesting a potential for accessing online resources via mobile platforms. This highlights mobile phones as critical tools for digital engagement within the community.

## 2. Internet Access and Usage:

- **Internet Access:** 20 individuals did not have Internet access, presenting a barrier to digital engagement. However, 30 individuals did have Internet access, indicating a significant portion can engage with online resources and services.
- **Varied Internet Usage:** There is a disparity in Internet usage:
  - **Daily Users:** 20 individuals use the Internet daily, likely engaging in a broad range of activities.
  - **Weekly Users:** 10 individuals use the Internet weekly, indicating more targeted use.
  - **Non-Users:** 20 individuals do not use the Internet at all, possibly due to lack of access or skills.

## 3. Educational Opportunities:

- **Limited Online Educational Access:** 30 respondents lacked access to online educational opportunities, highlighting barriers such as digital infrastructure and economic constraints.
- **Access to Online Education:** 20 respondents had access, suggesting they could engage in online learning and benefit from digital education resources.

## 4. Health Information and Well-being:

- **Use of Technology for Health Information:** 30 participants used technology to access health information, indicating a positive trend toward digital engagement in health management.
- **Perceived Health Improvement:** 30 individuals reported an improvement in health and well-being, likely due to accessing online health resources. However, 20 did not perceive such benefits, indicating a gap in effective utilization or access to these resources.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

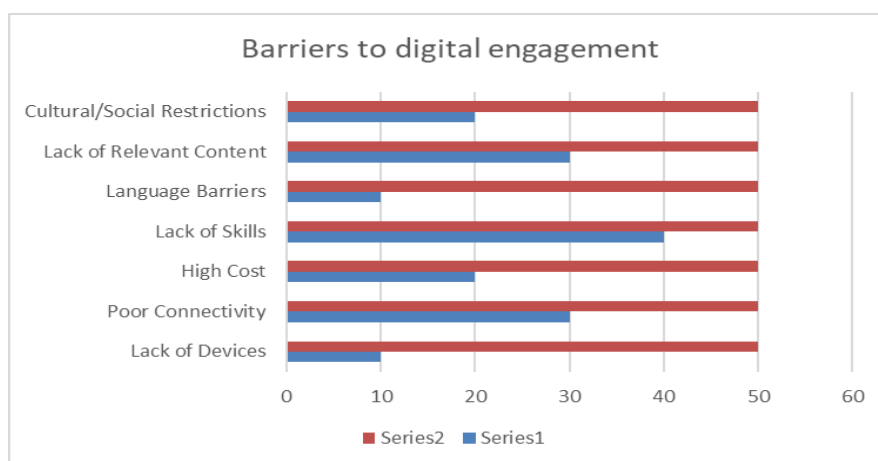
## 5. Access to Government Services:

- **Limited Access:** 30 individuals did not access government services online, likely due to digital infrastructure gaps or lack of awareness.
- **Digital Access:** 20 participants could access government services online, which enhances convenience and civic engagement.

## 6. Financial Management:

- **Engagement in Digital Financial Management:** 30 respondents used technology for financial management, indicating a trend toward digital financial inclusion.
- **Non-Engagement:** 20 respondents did not use technology for financial management, suggesting barriers like lack of digital skills or security concerns.

### Barriers to digital engagement:



- **Lack of Skills** is the most prevalent barrier, affecting 40 out of 50 individuals, indicating a significant need for digital literacy training.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

- 
- **Poor Connectivity** and **Lack of Relevant Content** also impact a substantial portion of the population (30 individuals each), highlighting the need for better infrastructure and content that resonates with the community.
  - **High Cost** and **Cultural/Social Restrictions** affect 20 individuals each, suggesting economic and societal factors that limit digital engagement.
  - **Lack of Devices** and **Language Barriers** are less prevalent but still significant, affecting 10 individuals each.

## Conclusion:

Technological awareness is a powerful tool for empowering tribal women, enabling them to overcome socio-economic barriers and improve their quality of life. The case study of the Birbhum tribal area illustrates the significant impact of technology on communication, education, health, and economic activities. However, targeted interventions and inclusive policies are essential to ensure that tribal women can fully leverage the benefits of technology for their empowerment and community development.

The study highlights the complex barriers to digital inclusion, including inadequate digital infrastructure, economic constraints, lack of digital literacy, and cultural and social barriers. To overcome these challenges and enhance digital engagement, a comprehensive strategy is needed, which includes Digital Literacy Programs, Improving Infrastructure, Content Development, Economic Support, Community Engagement. Addressing these barriers can enhance access to digital technologies, thereby expanding socio-economic opportunities and improving the overall quality of life for the community.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

## References:

- Chaudhary, P., & Sharma, R. (2021). E-learning and its challenges in rural India: A focus on educational equity. *International Journal of Educational Technology in Higher Education*, 18(1), 1-15. <https://doi.org/10.1186/s41239-021-00271-6>
- Dasaratharamaiah, K., & Naik, R. (2019). Education and socio-economic development of tribal women: A study. *Shanlax International Journal of Economics*, 7(4), 9–19. <https://doi.org/10.34293/economics.v7i4.608>
- Gupta, A., & Arora, A. (2017). The role of self-help groups in women empowerment: A study on rural women's access to ICT. *Global Journal of Human-Social Science: Sociology & Culture*, 17(6), 34-42.
- Kumar, N., & Patel, D. (2018). Access to technology and its impact on rural development: A study of ICT initiatives in India. *International Journal of Information Management*, 38(2), 165-176. <https://doi.org/10.1016/j.ijinfomgt.2017.09.004>
- Mishra, A., & Dash, A. K. (2019). Digital literacy and rural women empowerment: A study on the role of ICT in enhancing socio-economic conditions. *Journal of Rural Development*, 38(3), 351-368. <https://doi.org/10.25175/jrd/2019/v38/i3/157428>
- P., & -, V. (2024). From constraint to capability: Factors driving tribal women empowerment through SHGs. *International Journal For Multidisciplinary Research*, 6(4). <https://doi.org/10.36948/ijfmr.2024.v06i04.24606>
- R., & -, D. (2023). Contribution of rural development programs in empowerment of tribal women: A case study. *International Journal For Multidisciplinary Research*, 5(5). <https://doi.org/10.36948/ijfmr.2023.v05i05.5894>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 73 - 88

---

Roy, S., & Singh, R. K. (2020). The impact of mobile technology on rural women: A case study of empowerment and inclusion. *Journal of Community Informatics*, 16(1), 45-62.

<https://doi.org/10.15353/joci.v16i1.3552>

Singh, H., & Negi, S. K. (2016). Gender equality and women empowerment: A qualitative study on Kinnauri tribal women in social work perspective. *IRA-International Journal of Management & Social Sciences*, 3(2). <https://doi.org/10.21013/jmss.v3.n2.p2>



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

---

## Empowering student teachers: A catalyst for a sustainable future

Nilovi Chopi

Research Scholar, Department of Education, Nagaland University  
India Email ID: [nilovichophi17@gmail.com](mailto:nilovichophi17@gmail.com)

Visiezonuo Metha

Research Scholar, Department of Education, Nagaland University  
India, Email ID: [methavisie21@gmail.com](mailto:methavisie21@gmail.com)

Dr Khotole Khieya

Associate Professor, Department of Education, Nagaland University  
India, Email ID: [khotolekhieya@gmail.com](mailto:khotolekhieya@gmail.com)

Dr. Limala

Associate Professor, Department of Education, Nagaland University  
India Email ID: [limala19@gmail.com](mailto:limala19@gmail.com)

---

### Abstract

The environment on Earth is the source of life. However, the advancement of agriculture, technology, and population growth has significantly impacted our environment. Humanity has been misusing the environment since its earliest existence. As a result, education is crucial for the development and sustainability of societies; technology has a significant role in improving educational outcomes and processes. With the introduction of NEP 2020, emphasis has been given to integrating environmental awareness and compassion towards its conservation and sustainable development so that environmental education becomes an integral part of school curricula. Therefore, the student-teacher must possess a comprehensive understanding of sustainability. Giving student-teachers the influence they need to build a sustainable future is essential, as they will eventually become educators. We can ensure that the upcoming generation of educators actively supports and accepts sustainable practices by integrating sustainability into teacher training programs. Given the importance of utilizing digital tools and practices to improve sustainability, teacher training institutions can incorporate technology for

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

sustainability. This paper aims to examine the extent to which teacher training institutions integrate technology for sustainability into their courses. The paper also discusses the problems of implementing the concept of sustainability into their curriculum. Further, the investigators will highlight specific actions and strategies for integrating sustainability into teacher preparation programs.

**Keywords:** Environmental Education, NEP 2020, Student Teacher, Sustainability, Teacher Education Institutions, Technology.

## Introduction

The physical requirements have increased with the remarkable advancement of human civilization. To meet the demands of human society, natural resources are being destroyed. Humans will endanger future generations if they keep consuming resources without considering the future. Thus, attempts are being undertaken to preserve it. The promotion of environmental consciousness and sustainability via education is one such effort. Information dissemination and environmental conservation both depend on education. Thus, environmental education is taught at many levels in a nation like India, either as integrated courses or through separate disciplines. Environmental education in our country has two aspects- first, knowledge of the natural resources and their conservation and second, knowledge of the natural environment and the measures to prevent it from pollution (Lal & Sinha, 2008). Because of its significance, environmental education is mandatory as a subject in most of the regions in our country. Thus, educators need to understand the environment thoroughly to teach children the value of conserving the environment, protecting it, and instilling in them a feeling of responsibility and awareness from an early age. Therefore, a teacher must be taught to transfer environmental knowledge to the students easily. Sustainability must be a part of the teacher education curriculum because student-teachers will eventually become future instructors. Student-teachers must be given the authority they need to create a sustainable future. We can ensure that the upcoming generation of teachers actively supports and accepts sustainable practices by introducing sustainability into teacher training programs. This will ultimately lead to a more sustainable future. In today's technologically advanced world, integrating technology into every aspect of life is essential. Utilizing technology, one may access a vast

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

amount of knowledge. Teacher training institutions can integrate technology for sustainability, given how crucial it is to use digital tools and practices to enhance sustainability. Therefore, it is essential to provide various resources, including teaching materials on sustainability issues, such as textbooks, online resources, hands-on project kits, etc., to prepare student-teachers better to promote a sustainable future. Through the effective and innovative use of technology, student-teachers can build their pedagogical skills and prepare their pupils to tackle and resolve sustainability issues in the future.

## **Initiatives taken by the Government of India on sustainability under NEP 2020**

In the history of Indian education, environmental education was not given much importance, which is evident in National Policy Education (NPE) 1968, where environmental studies was not addressed as a separate subject. However, NPE 1986 focused on environmental protection, signalling the beginning of integrating environmental awareness into education. This focus was further emphasized in POA 1992, which stated that teaching in schools should be guided by environmental consciousness. By 2003, environmental education was made a compulsory subject. A significant paradigm shift occurred with the introduction of National Education Policy (NEP) 2020. It also talks about holistic and multidisciplinary education and includes all Higher Education Institutes (HEI) within its ambit. It focuses on community-based projects, community engagement, and fieldwork as the central focus area of the environment. It envisions education promoting academic excellence and instilling a sense of responsibility towards the planet. With the introduction of NEP 2020, environmental education is integrated into school curricula to promote awareness, conservation, and sustainable development. For this reason, the student-teacher must have sustainability knowledge. NEP 2020 emphasizes that all B.Ed programs must integrate environmental awareness and sensitivity towards its conservation and sustainable development.

## **Review of Related Literature**

Dr. Rajesh Dhaka (2024) studied "Role of Teachers and Higher Education in Achieving the Sustainable Development Goals". The investigator finds that teachers and institutions influence students' views and

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

beliefs, encouraging them to become informed and responsible citizens. Teachers teach pupils problem-solving, decision-making, and critical thinking abilities, allowing them to make informed decisions, while institutions assist the achievement of the Sustainable Development Goals (SDGs).

S. Manali & Dr. G. Elizabeth (2023) studied "Teacher Education as a Catalyst for Achieving Sustainable Development: Indian Scenario". The study found that educators must be trained on gender equality, peace, social justice, respect for human rights, and other issues to promote the long-term, sustainable, and equitable development of all aspects of the community.

F. Therese. Et. Al. (2022) studied "Education for Sustainable Development (ESD) Infusion Into Curricula: Influences on Students' Understandings of Sustainable Development and ESD." The researchers discovered that ESD infusion increased students' awareness and knowledge of SD and ESD. Additionally, infusion allowed students to explore their unique roles and behaviours regarding sustainability and ESD.

K. Vasiliki & V. Nikolaos (2022) studied "Education for Sustainable Development as the Catalyst for Local Transitions Toward the Sustainable Development Goals". The investigator discovered that decision-making and strategic thinking were essential for weighing various choices and deciding on a plan of action. As a result, self-awareness and regulation were considered critical skills for understanding one's involvement in sustainability issues and dealing with the obstacles.

## Objectives of the study

1. Objective 1: To examine the extent to which teacher education institutions incorporate technology for sustainability within their curricula.
2. Objective 2: To analyze the problems and barriers teacher education institutions face in integrating sustainability into their curriculum.
3. Objective 3: To highlight and propose strategies for effectively integrating sustainability into teacher preparation programs.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

## Methodology of the study

The present study is qualitative and descriptive based on primary and secondary data. The study sample comprised 156 participants pursuing B.Ed in three different colleges in Kohima district of Nagaland. The researchers used a self-constructed questionnaire of 10 close-ended questions to collect data. Analysis of the study involves counting the frequency and calculating the corresponding percentage of respondents.

Table 1: Breakup of the sample based on demographic variables

<b>Variables</b>	N = 156
<b>Gender</b>	Female = 121
	Male = 35
<b>Management</b>	Government = 32
	Private = 124
<b>Educational Qualification</b>	Graduate = 47
	Postgraduate = 109

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

---

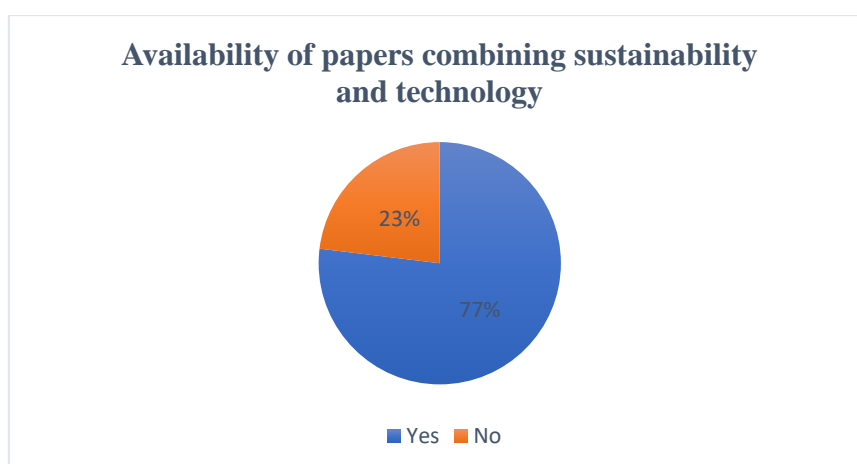
## **Objective 1: To examine the extent to which teacher education institutions incorporate technology for sustainability within their curricula.**

To achieve objective 1, the investigators focused on seven aspects: the Presence of Sustainability and Technology in Coursework, Institutional Support, Available Technological Resources, Participation in Projects, Enhancement of Understanding, Importance of Sustainability Integration, and Current Integration Level.

### Presence of Sustainability and Technology in Coursework

The majority of the respondents indicated that their coursework includes papers combining sustainability and technology. As shown in Figure 1.1, 77% of respondents reported that their coursework includes papers combining sustainability and technology, indicating a significant level of incorporation.

Figure 1.1: Availability of papers combining sustainability and technology



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

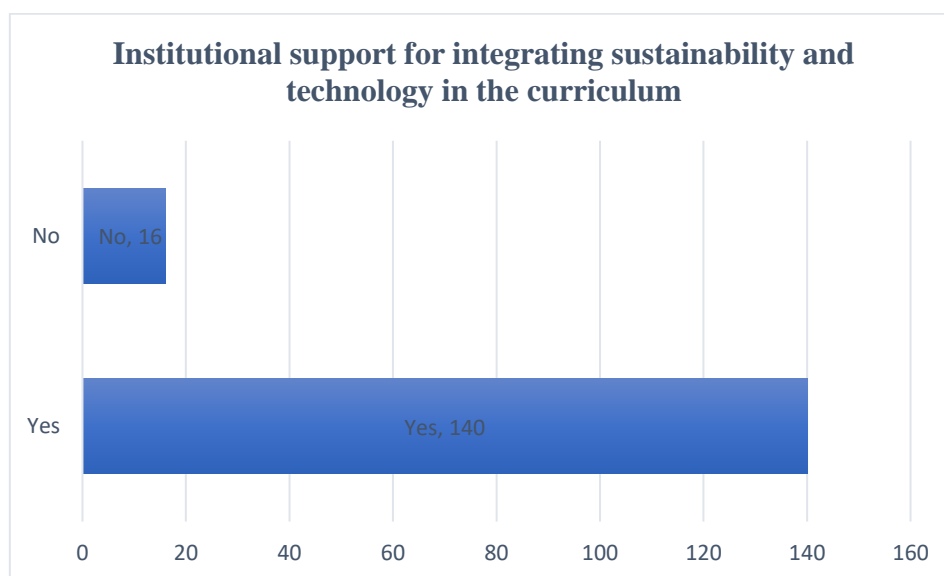
E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

## Institutional Support, Available Technological Resources

A vast majority of respondents indicate that their institutions support integrating sustainability and technology into the curriculum. As seen in Figure 1.2, 140 (90%) of respondents indicated that their institutions support this integration, suggesting strong institutional backing.

Figure 1.2: Institutional support for integrating sustainability and technology in the curriculum



## Available Technological Resources

The high prevalence of smart classrooms and online learning platforms indicates strong institutional investment in interactive and technology-enhanced learning environments.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

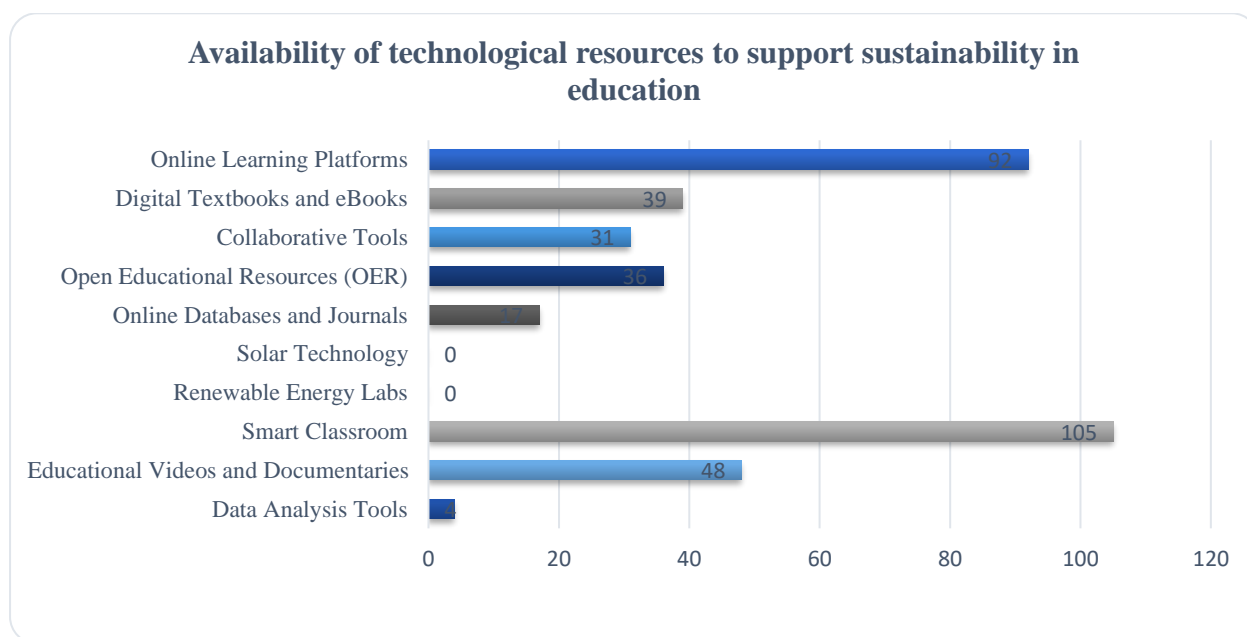


An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

Figure 1.3: Availability of technological resources to support sustainability in education



The availability of resources such as smart classrooms (64%), online learning platforms (58%), and digital textbooks and eBooks (24%) highlights the extent to which technology is incorporated to support sustainability education. At the same time, renewable energy labs and solar technology are non-existent in any of the three teacher education institutions.

## Participation in Projects

The data shows that a significant majority of teacher education institutions incorporate technology for sustainability within their curricula. The high percentages of institutional support, availability of technological resources, and participation in technology-driven projects all support this conclusion.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

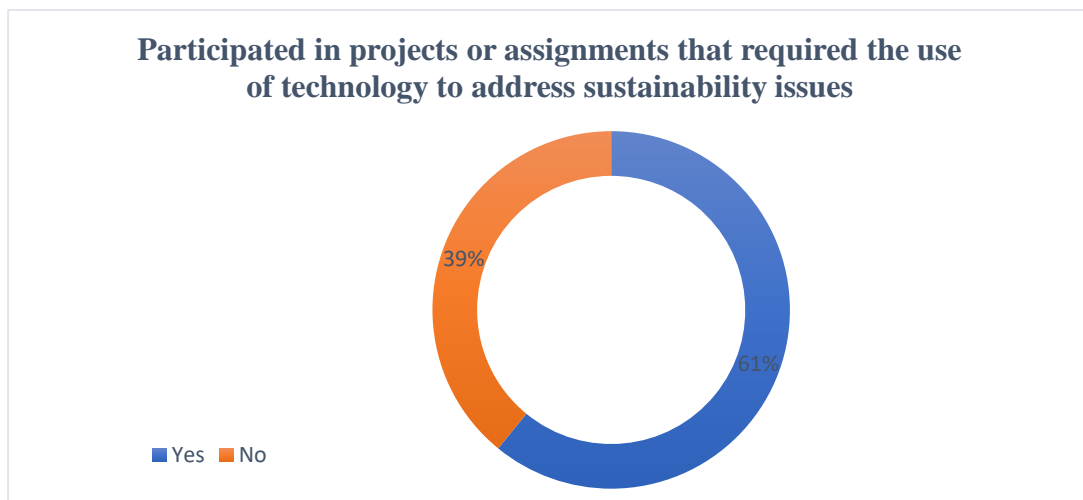


An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

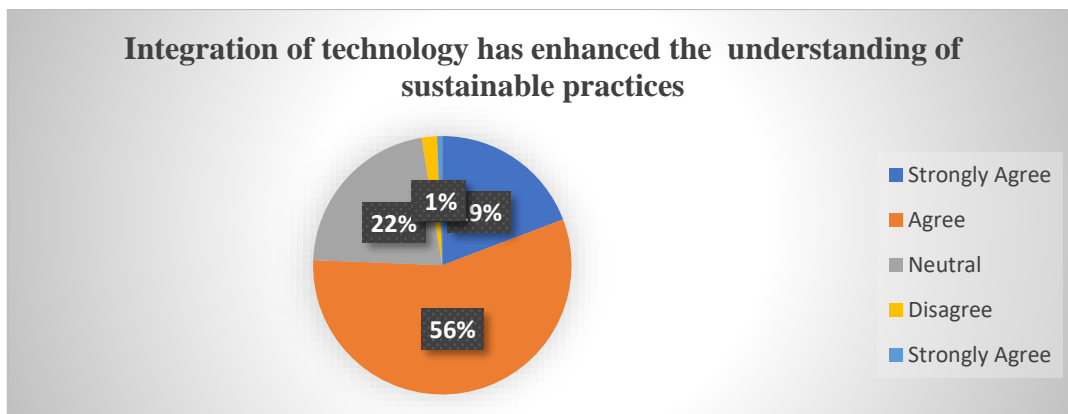
Figure 1.4: Participated in projects or assignments that required the use of technology to address sustainability issues



## Enhancement of Understanding

A significant majority of respondents believe that the integration of technology has enhanced their understanding of sustainable practices.

Figure 1.5: Integration of technology has enhanced the understanding of sustainable practices



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

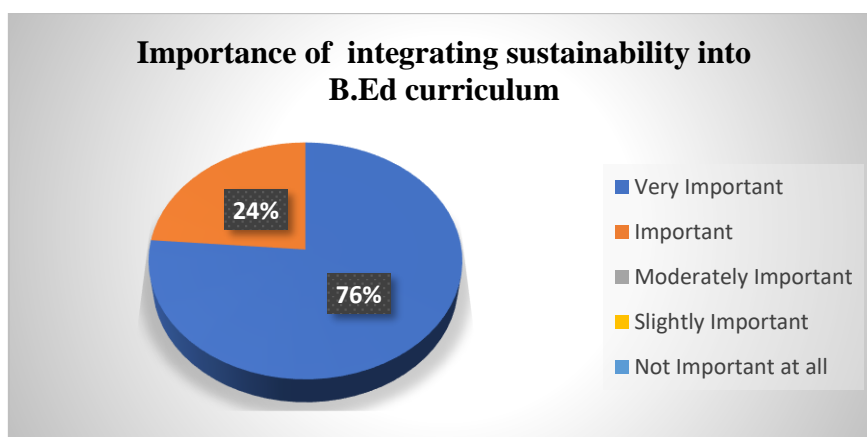
E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

## Importance of Sustainability Integration

A vast majority of respondents consider the integration of sustainability into the curriculum to be important or very important, indicating strong recognition of its value.

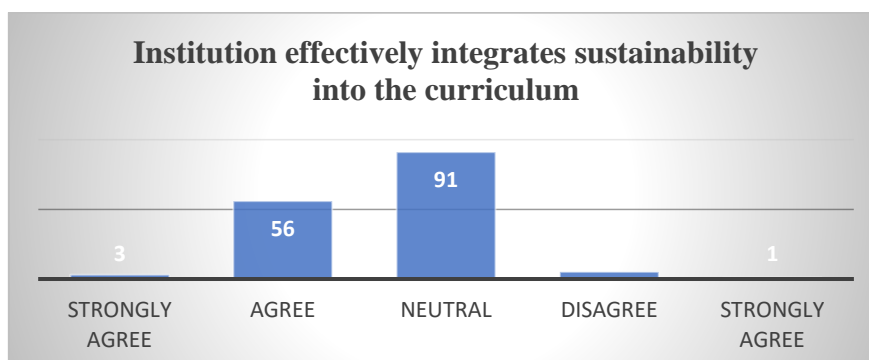
Figure 1.6: Importance of integrating sustainability into B.Ed curriculum



## Current Integration Level

A majority of respondents feel that their institution integrates sustainability well, indicating successful implementation in many cases.

Figure 1.7: Institution effectively integrates sustainability into the curriculum



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

The responses indicate strong institutional support, effective use of technological resources, and a positive impact on understanding sustainable practices.

**Objective 2: To analyze the problems and barriers teacher education institutions face in integrating sustainability into their curriculum.**

The main barriers identified include lack of resources, curriculum overload, lack of faculty expertise and technological barriers.

Table 2: Barriers to integrating the concept of sustainability into the curriculum

Barriers	Frequency	Percentage
Lack of resources	116	74%
Lack of faculty expertise in sustainability	47	30%
Insufficient training	53	34%
Curriculum overload	85	54%
Lack of institutional support	22	14%
Insufficient funding	58	37%
Student engagement	46	29%

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

Technological Barriers

49

31%

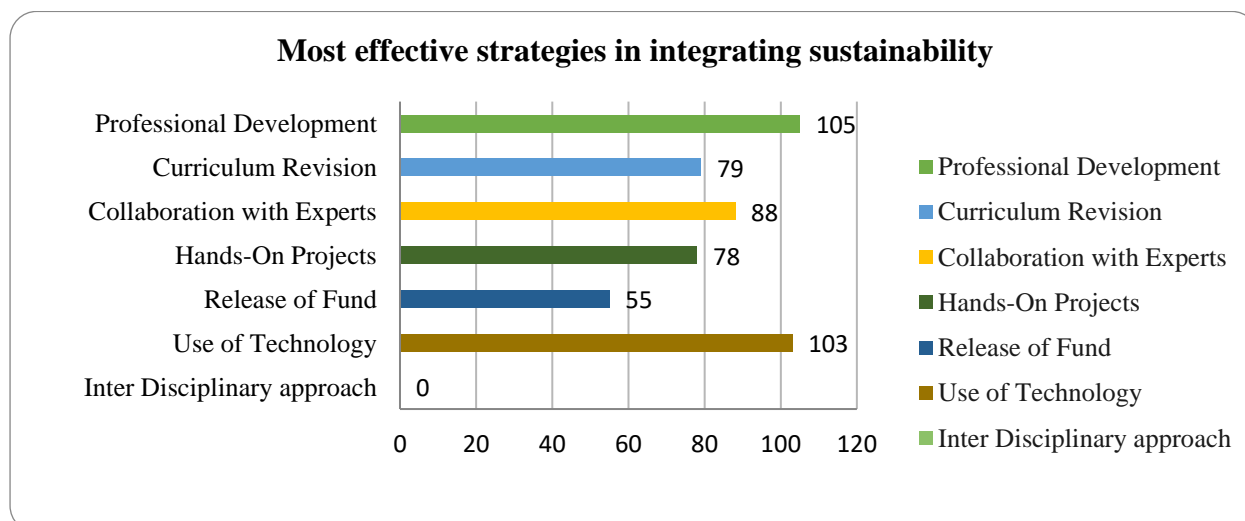
Based on the response, lack of resources is perceived as the main barrier, with 74% of the respondents choosing it. It is followed by curriculum overload (54%), insufficient training (37%), and technological barriers (31%). Lack of institutional support is perceived as the least of all the barriers.

**Objective 3: To highlight and propose specific strategies for effectively integrating sustainability into teacher preparation programs.**

### Effective Strategies

As identified by the respondents, the most effective strategies for integrating sustainability into teacher preparation programs include professional development, curriculum revision, collaboration with experts, hands-on projects, funds release, and technology use.

Figure 3.1: Most effective strategies in integrating sustainability



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

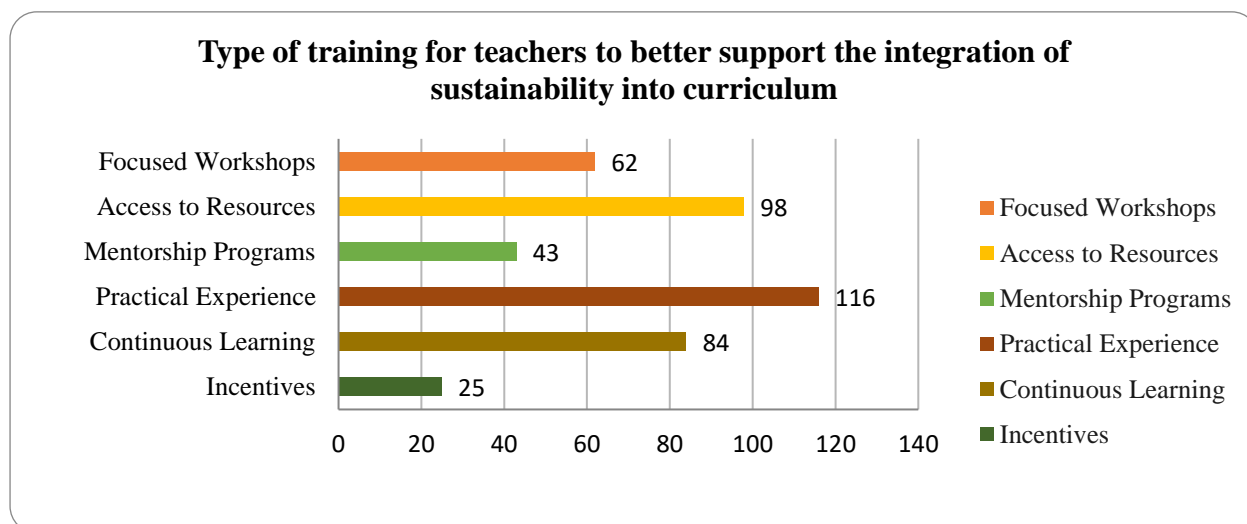
Page No.: 89 - 106

As shown in Figure 3.1, the highest percentage of respondents identified professional development (67%) and use of technology (66%) as the most effective strategy. Over half of the respondents emphasized the need for revising the curriculum (51%) to integrate sustainability and indicated that collaborating with experts (56%) is crucial. While less frequent, release of fund (35%) is still considered a significant strategy.

## Improvement Suggestions

While the suggestions for improvement includes access to resources, practical experience, continuous learning, focused workshops, mentorship programs, and incentives.

Figure 3.2: Type of training for teachers to better support the integration of sustainability into curriculum



From the above Figure 3.2, the most frequently suggested the need for practical experience (74%) and increasing access to resources (63%) as the training for teachers to support the integration of sustainability into the curriculum. Over half of the respondents (54%) consider continuous learning opportunities necessary. Focused workshops (40%) and mentorship programs (28%) are other vital

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

suggestions, indicating a need for specialized training sessions that concentrate on specific aspects of sustainability education. The least frequent suggested incentive, 16%, is a type of teacher training.

## Findings

1. A majority of 77% of participants indicated that their coursework comprises papers integrating sustainability and technology, and 23% indicated that their coursework does not contain such papers.
2. The overwhelming majority of respondents—90%—state that their institutions support incorporating technology and sustainability into the curriculum, while the remaining 10% say that their institutions oppose this.
3. The availability of resources such as smart classrooms (64%), online learning platforms (58%), and digital textbooks (24%) highlights the extent to which technology is incorporated to support sustainability education.
4. A significant percentage of respondents—63%—have engaged in projects or assignments that necessitated using technology to address sustainability challenges. 39%, however, have not taken part.
5. The majority of respondents, 56% agree, 19% strongly agree, 22% are neutral, and 1% disagree that their awareness of sustainable practices has improved as a result of technological integration.
6. A great appreciation of sustainability's worth is evident from the responses, all of whom rate its inclusion in the curriculum as important or very important.
7. The overwhelming majority of responders stated that their institutions favour incorporating technology and sustainability into the curriculum. The fact that 90% of respondents said their institutions support this integration, there appears to be substantial institutional support for it.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

8. The majority of the respondents perceived the lack of resources and followed by curriculum overload are significant barriers. Institutions must allocate more resources specifically for sustainability education and consider integrating sustainability into existing courses to ensure the curriculum is manageable.
9. The highest percentage of respondents identified professional development (67%) and use of technology (66%) as the most effective strategy.
10. The most commonly suggested improvements include increasing access to resources, providing practical experience, fostering continuous learning, organizing focused workshops, and establishing mentorship programs. By addressing these areas, educational institutions can enhance the effectiveness of their sustainability education programs and better prepare teachers to educate their students on sustainability issues.

## Educational implication

### 1. *Curriculum Design and Development:*

- a. **Integration of Sustainability and Technology:** Educational institutions should ensure that sustainability and technology are consistently integrated into the curriculum. This could involve revising existing courses or developing new ones that explicitly address these themes.
- b. **Professional Development:** Regular professional development programs are essential to equip faculty with the necessary knowledge and skills to teach sustainability effectively.

### 2. *Institutional Support and Resources:*

- a. **Enhanced Institutional Support:** Continuous institutional support is crucial for the successful integration of sustainability. Institutions should provide the necessary

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

---

resources, such as funding, access to technology, and support for project-based learning.

- b. **Technological Infrastructure:** Investing in technological infrastructure, including smart classrooms, online learning platforms, and renewable energy labs, will enhance the learning environment and support sustainability education.

### 3. *Addressing Barriers:*

- a. **Resource Allocation:** Institutions should prioritize allocating resources to overcome barriers such as lack of resources, curriculum overload, and insufficient training.
- b. **Faculty Training and Expertise:** Providing faculty with ongoing training and professional development opportunities will help address the need for more expertise in sustainability.

### 4. *Engagement and Collaboration:*

- a. **Student Engagement:** Developing strategies to increase student engagement in sustainability projects and courses is vital. This could include incorporating more hands-on projects and collaborative learning opportunities.
- b. **Collaboration with Experts:** Institutions should foster collaborations with sustainability experts to bring real-world perspectives into the classroom.

### 5. *Continuous Improvement and Innovation:*

- a. **Regular Assessment:** Continuous assessment of the integration of sustainability and technology in the curriculum will help identify areas for improvement and ensure that the education provided remains relevant and effective.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

- b. Innovative Teaching Methods: Embracing innovative teaching methods, such as gamification and interdisciplinary approaches, can make sustainability education more engaging and impactful.

## Suggestion

1. A consistent curriculum for sustainability should be incorporated into teacher education programs. Policymakers and stakeholders must collaborate to provide sustainability education to student-teachers to build a sustainable future.
2. Curriculum Revision: Regularly update the curriculum to include the latest developments in sustainability and technology.
3. Technology integration can be leveraged to improve sustainability by enabling student-teachers to grasp sustainability better. Additionally, this can promote participation and prepare student teachers for the rapidly evolving digital economy.
4. Obtaining the necessary resources for sustainability requires a significant financial investment, which may need to be more affordable. Therefore, the government should look into this matter and provide funding for sustainability.

## Conclusion

Developing a sustainable future requires empowering student teachers. We can ensure they can teach their students sustainable behaviours and values by providing them with the proper resources, knowledge, and self-assurance. In addition to improving their professional growth, this empowerment advances the larger objective of building a more just and sustainable society. Educational institutions can significantly impact educating student teachers to become successful change agents for sustainability by emphasizing thorough training, mentorship, and support networks. Giving student teachers the skills and mindset they need to promote sustainability both inside and outside of the educational system is just one component of the complex process of empowering them.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 89 - 106

---

## Reference

- Dhaka, R. (2024). Role of Teachers and Higher Education in Achieving the Sustainable Development Goals. *International Journal for Multidisciplinary Research (IJFMR)* 6(1), E-ISSN: 2582-2160
- Kioupi, V. & Voulvoulis, N. (2022) Education for Sustainable Development as the Catalyst for Local Transitions Toward the Sustainable Development Goals. *Front. Sustain.* 3:889904. doi: 10.3389/frsus.2022.889904.
- Lal. R. B, & S. G. N. (2008). *Development of Indian education and its problem*. R. Lall Book Depot.
- Manali, S. & Elizabeth, G. (2023). Teacher Education as a Catalyst for Achieving Sustainable Development: Indian Scenario. *International Journal of Research in Social Sciences* 13(04). ISSN: 2249-2496. <http://www.ijmra>.
- MHRD. (2020, July 29). *National Education Policy 2020*.  
[https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)
- Therese. Et. Al. (2022). Education for Sustainable Development (ESD) Infusion Into Curricula: Influences on Students' Understandings of Sustainable Development and ESD. *A journal of educational research and practice*. Vol. 31 (2) 63–84  
<https://journals.library.brocku.ca/brocked>.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

---

## Attitude of Teacher Educators' Towards Modern Trends of Technology in Teacher Education Programme

Mukesh Haldar

Assistant Professor, A M Teachers Training Institute (B.Ed. Dept.),  
Murshidabad, West Bengal, India.

Email: [mukeshhalder@gmail.com](mailto:mukeshhalder@gmail.com)

---

### Abstract

Due to the extensive use of technology in every walk of life, the teacher educational institutes are also supposed to prepare their trainee teachers to be technological literate. The aim of modern education is to educate an individual academically and professionally to adapt to the global digital world along with developing a holistic personality. There are several modern trends in teacher education. Artificial intelligence is the most modern trend in education and it just started gaining ground in the field of education, it is mostly used in the administration level to automate the works and grading purposes by the teachers. This study examined teacher educators' attitude towards modern trends of technology and their level of attitude; whether it is favourable or unfavourable. The participants were the teacher educators of Colleges of Education in Murshidabad district, West Bengal. Simple random sampling was adopted. Results indicated teacher educators' have favourable and positive attitude towards modern trends of technology.

**Key Words:** Modern Education, New Technology, Teachers Educators' Attitude.

### Introduction

Teacher education is an important training program in any education system. It deals with procedures, provisions and principles to help candidates learn and acquire knowledge about various concepts. Candidates are trained to equip themselves with the best teaching skills,

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

knowledge, attitudes and behaviours required to perform effectively in any learning environment such as a classroom or school. It is now becoming important for teachers to learn to manage various digital tools. Present days positive attitudes of teacher educators towards modern trends in technology in teacher education programs is very essential for advancements in teacher preparation programs. Teachers should be trained on modern concepts and ideas to expand their knowledge boundaries and adapt to new learning environments, for example, with advancing technology, they are trained in e-teaching and virtual learning methods on how to operate technology and tools for effective teaching. Many researchers in the field of education have explored various factors that influence the use of technology in education in one way or another. One of the most prominent factors influencing the successful use of computers in the classroom is teachers' attitudes toward computers.

Artificial Intelligence (AI) is the game changer innovation in modern education system. It is broadly used by teachers, students, administrators in education field. AI tools help teachers automate routine tasks such as grading papers and attendance, freeing up time for more personalized student interactions. Additionally, AI can provide insights into student performance, helping educators identify areas where students struggle and need additional support and personalized studying, may assist teacher educators to improve their studying and practice. The main aim of AI to create intelligent computer systems that can handle challenging problems. There are widely used applications for this technology in the education system.

## Review of Related Literature

**Rani, Sarla. (2022)** The study of 'Attitude of senior secondary school teachers towards using new technology in teaching learning.' There she has discuss is the importance of ICT in teaching learning situation and attitude of the teachers towards modern technology in secondary schools. Majority of Teachers Educators are favourable attitude towards ICT.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

---

**C., Thanavathi. (2021).** The main aim of the study entitled “Attitude towards digital media among teacher educators.” was to find out the significant difference between attitude towards digital media among teacher educators. The findings of the study were: there is no significant difference between male and female teacher educators and also no significant difference between digital media user and age of teacher educators in their attitude towards digital media.

**Draboo (2020)** in a study on the ‘Analysis of Recent Trends in Higher education in India using Information Communication Technology’ discussed about on ICT is crafting the rule of future education in India by emerging as one of the most efficient means used by both learner and teachers the age use of ICT in higher education or toward content generation building research in critical area imparting education and integrating knowledge with the advancement of Technology.

**Uppal (2019)** conducted on a study ‘Effectiveness of Massive Online Courses for Training Teachers in Higher Education’. The Sample comprises 311 participants included based on purposive sampling. The experimental design was adopted for the study. Major findings of the study established that MOOC can be used for knowledge building and professional development of higher education teachers at the college level respective object educational qualification and geographical location.

**Gond et al (2017)** Perform an analysis of digital education in India scope and the challenges of Indian society. The motive of this look-up was on as soon as to give an overview of digital education, a component of digital education, and the advantages of digital training in India notable, the feature is scope, and double challenges of Indian society for shifting towards digital education. Finally, they conclude that the development of education infrastructure is required for the development of digital training during the counter.

**Mahajan, Gourav. (2016)** The study of ‘Attitude of Teachers towards the use of Technology in Teaching’ is conducted on the sample of 100 school teachers of 10 school from a particular

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

district. The major findings of this study is there are only 25% teachers have favourable attitude towards the use of technology in teaching.

**Rana, Nishta. (2012)** The aim of “A study to assess teacher educators' attitudes towards technology integration in classrooms.” was to assess the teacher educators' attitudes towards technology integration in classrooms. The data were collected with the help of a Teacher Educators' Attitude towards ICT Scale containing forty items from 21 teacher educators from a teacher education college in north India participated in this study. The results show that most of the teacher educators have positive attitudes towards the general role that information and communication technology can play in education and in the educational process. The findings also reveal that no gender differences exist on attitudes towards ICT in teacher training. Further analysis shed light on differences in attitudes with respect to age.

## Critical Review and Research Gap

After reviewing the many research studies, it is clear that several works are done on the effect of new technology in Education and attitude of teachers towards the new technology in teaching learning situation in school learning but there are no studies on the Attitude of Teacher Educators' Towards Modern Trends of Technology in Teacher Education Programme.

## Statement of Problems

The researcher stated the present problem as “Attitude of Teacher Educators' Towards Modern Trends of Technology in Teacher Education Programme.”

## Objectives of the Study

- To study the new technologies in teacher education programme.
- To understanding the importance of new technology in teaching learning situation.
- To study the concept of AI, smart classroom and digital library in education.
- To study the attitude of teacher educators towards using AI in education.
- To study the attitude of teacher educators towards using smart classroom in education.
- To study the attitude of teacher educators towards using digital library in education.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

## Methodology of the Study

A systematic way to solve a research problem is considered as research methodology. The Methodology of the proposed study comprises the method of the research, population, sample, sampling technique, tools for data collection, and procedure of the data analysis.

## Method

The present study will be conducted through descriptive survey method.

## Population of the Study

The population for the present study are teacher educators of Teachers Training colleges in Murshidabad district, West Bengal.

## Sample and Sampling Technique

The sample for the present study will be comprised of 120 teacher educators of Teachers Training colleges in Murshidabad district, West Bengal through simple random sampling.

## Tools for data collection

The researcher formulated one questionnaire in Bengali version with 20 different items.

## Data Analysis

The data will be collected through self-made questionnaire. Collected data will be analyzed by calculating the percentage so the research study will be purely based on quantitative approaches.

## New Technologies in Teacher Education Programme

The current education system is becoming modern with the modern world. All the changes and evolutions that have taken place in the education system from the past have reached modern education. Modern education is based on various digital and new technologies. New

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

innovations are being added to the education sector day by day. Currently, some of the innovative technologies that have brought the education system to the pinnacle of development are- Virtual Reality (VR), Artificial Intelligence (AI), Smart Classroom, Digital Library, Mobile Learning, Personalized Learning, Augmented Learning, Cloud Computing, Gamification and many more. The researcher has been short discuss about the Virtual Reality (VR), Artificial Intelligence (AI), Smart Classroom, Digital Library and tries to find out attitude of teacher educators towards using these new technologies in teacher education programme.

## **Virtual Reality (VR)**

The technology in today's world has been developed and advanced and evolved over the years to the latest Virtual Reality(VR) system. VR experiences are now mainstream in entertainment, healthcare, education, business and more and are emerging as a positive force in the world in many ways. Currently VR technology is widely used in the education sector as well. In education field, VR is a computer application and tools which are allow students and users to cover the whole world real experience into the classroom. It is used to create a simulated environment and practical knowledge with 360-degree view. From kindergarten to higher level students have frequently used the VR for deep and real time practical knowledge. Virtual Reality (VR) has many positive effects on education. VR improves student engagement and motivation, VR-based simulations offer development of skills, decision-making abilities and critical thinking. Visualization of complex concepts: VR can help students access complex and abstract concepts by visualizing them in 3D space. So, the teacher educators also need the training for operating VR system as well.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

**Table 1.0 Showing the level of percentage of teacher education institutes' teacher educators on attitude towards using virtual reality(VR) in teacher education programme (N=120)**

Level	Teacher Educators	
	N	% (Percentage)
Highly Unfavourable Attitude	10	8.33
Unfavourable Attitude	25	20.83
Neutral	31	25.83
Favourable Attitude	43	35.83
Highly Favourable Attitude	11	9.17
<b>Total</b>	<b>120</b>	<b>100</b>

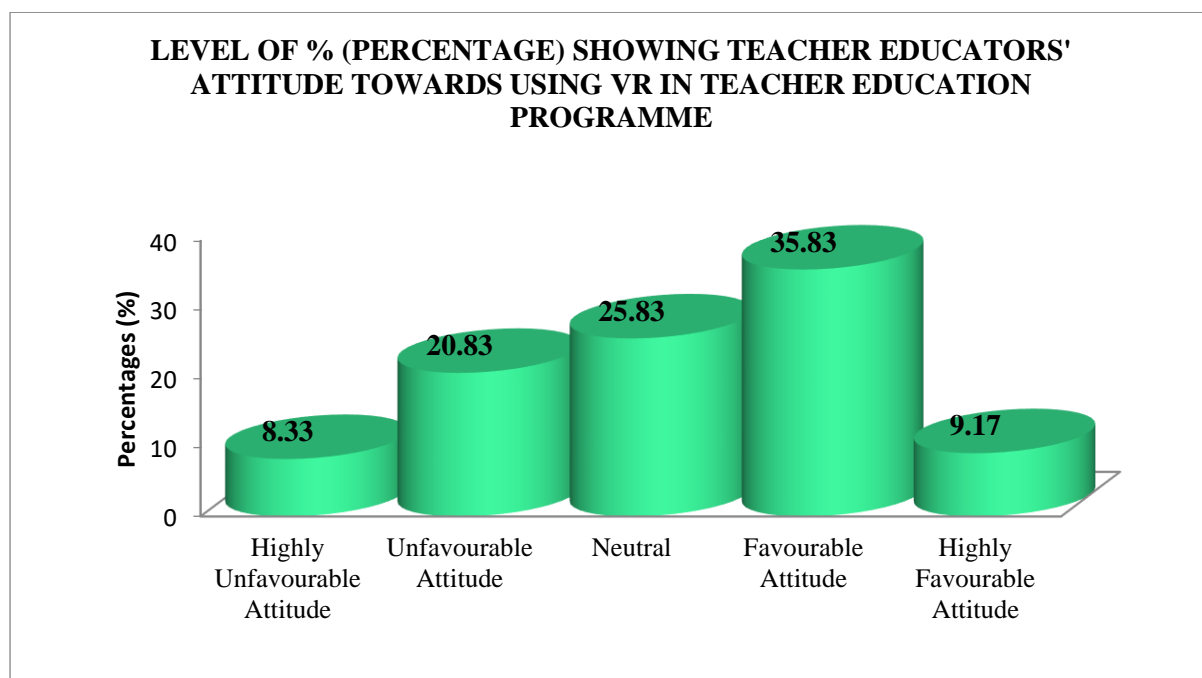


Fig : 1.0

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

---

The Table 1.0 shows the level of percentage of teacher educators on attitude towards using virtual reality(VR) in teacher education programme. The table shows that highest percentage i.e. 35.83% teacher educators have favorable attitude, 25.83% teacher educators kept themselves neutral, 20.83% teacher educators have unfavorable attitude and only 9.17% teacher educators have highly favorable attitude & 8.33% teacher educators have highly unfavorable attitude towards using virtual reality(VR) in teacher education programme.

## **Artificial Intelligence (AI)**

Artificial Intelligence plays an important role in every aspect of life. One such important sector is Artificial Intelligence (AI) in education. AI widely used in our daily life style by the using of smart phone and computers. The uses of AI rapidly growth in all the sectors in the world. Some developed countries like China, Japan, USA, Korea, Singapore etc. are already integrating Artificial Intelligence (AI)-centered curriculum for schools and higher studies also support the inclusion of Artificial Intelligence components in teacher education and others countries are still making progress.

In the present situation in India, University Grant Commission (UGC) has also recommended the application of modern techniques including hybrid methods. Day by day there are many modern and useful AI-application has been launched like ChatGPT, Chatbot, Brainly, Ivy.ai, Tutoring, Gradescope, Duolingo, Google and many more. These AI-powered applications and tools make education and learning more accessible. There are many advantages of AI viz With AI, students may be able to get instant feedback on their work, identify gaps in their knowledge and access additional resources. AI can also open up the continuous and formative assessment throughout the learning process. These innovative tools help to improve better engagement, personalized learning, faster accessibility, adaptive learning, support for special education, administrative tasks, automated grading, etc. These applications break down

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

language barriers in education using natural language processing, providing interactive lessons, practice exercises and instant translation services.

AI-enabled learning has also many critical disadvantages like loss of personal data privacy, high cost, bias etc. These tools can reduce human interaction and obstruct the development of human intellectual power, thinking power and mental ability, nevertheless according to present trends of technology, it can clearly, and we see the future of modern technology of education is AI.

**Table 2.0 Showing the level of percentage of teacher education institutes' teacher educators on attitude towards using AI in teacher education programme (N=120)**

Level	Teacher Educators	
	N	% (Percentage)
Highly Unfavourable Attitude	9	7.5
Unfavourable Attitude	21	17.5
Neutral	11	9.17
Favourable Attitude	51	42.5
Highly Favourable Attitude	28	23.33
<b>Total</b>	<b>120</b>	<b>100</b>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

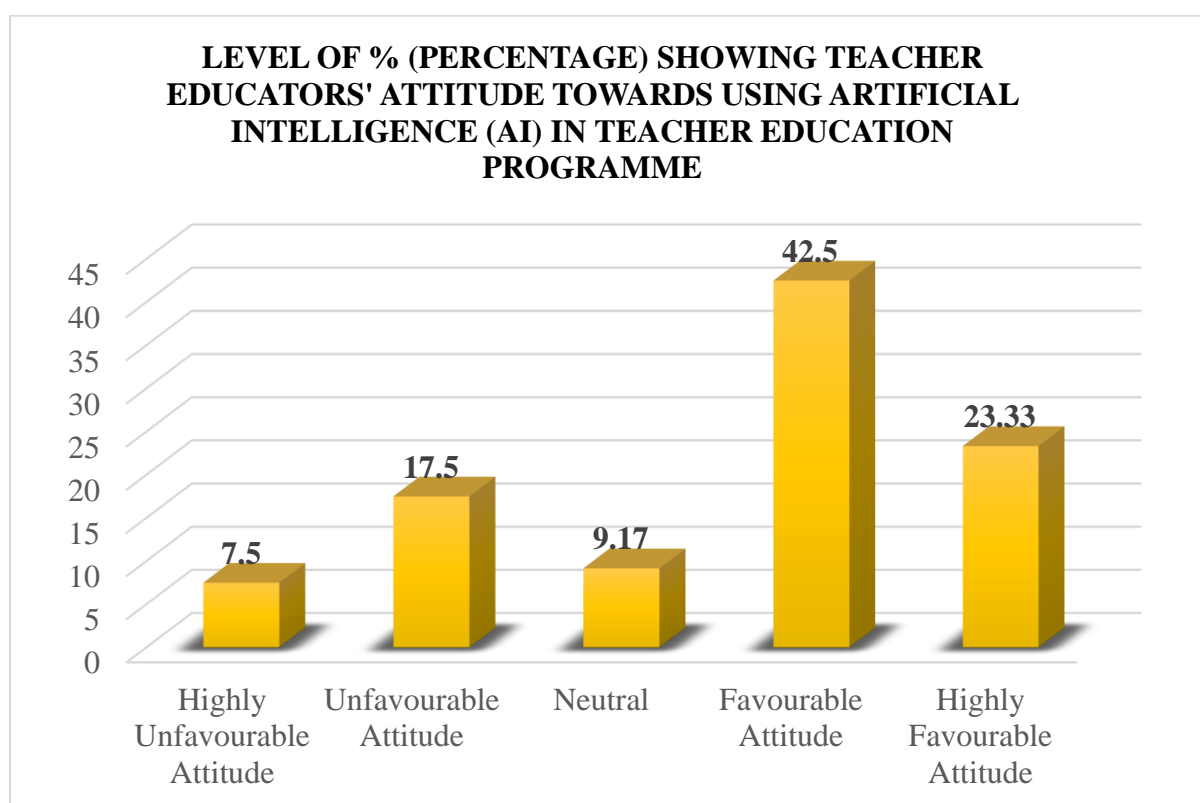


Fig: 2.0

The above table (Table 2.0) shows the level of percentage of teacher educators on attitude towards using artificial intelligence(AI) in teacher education programme. The table shows that highest percentage i.e. 42.5% teacher educators have favorable attitude, 23.33% teacher educators have highly favorable attitude, 9.17% teacher educators have neutral about this matter, 17.5% teacher educators have unfavorable attitude and only 7.5% teacher educators have highly unfavorable attitude towards using artificial intelligence(AI) in teacher education programme.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

## Smart Classroom

A smart classroom is a student-centred educational atmosphere that integrates the various tools of advanced technology to develop the teaching-learning experience. In today's digital age smart learning is a broad term for education which are came from smart classroom. Smart classroom is the continuous enhancing process of students active learning. It is providing the huge freedom to the student for self-learning. Smart classrooms equipped various engaging educational technology tools, such as: Interactive whiteboard, projector, laptops, tablets, online and offline education application, specialized software, networking, various video conferencing tools, Robust Learning management systems etc. Smart classrooms are equipped to provide advanced interactive learning experience for students, making the learning process more engaging, interesting and effective. These classrooms are designed to incorporate advanced technological features and provide a modern learning experience for students. Smart classrooms are allowing for communication between different institution in different countries, teachers can place Power points and notes online for students, assists teachers in presenting their information, allows students to focus more on the content of the lecture instead of taking notes, allows for more active participation of students and easier student/professor communication.

**Table 3.0 Showing the level of percentage of teacher education institutes' teacher educators on attitude towards using smart class room in teacher education programme**

(N=120)

Level	Teacher Educators	
	N	% (Percentage)
Highly Unfavourable Attitude	6	5.00
Unfavourable Attitude	14	11.67
Neutral	17	14.17

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

Favourable Attitude	46	38.33
Highly Favourable Attitude	37	30.83
<b>Total</b>	<b>120</b>	<b>100</b>

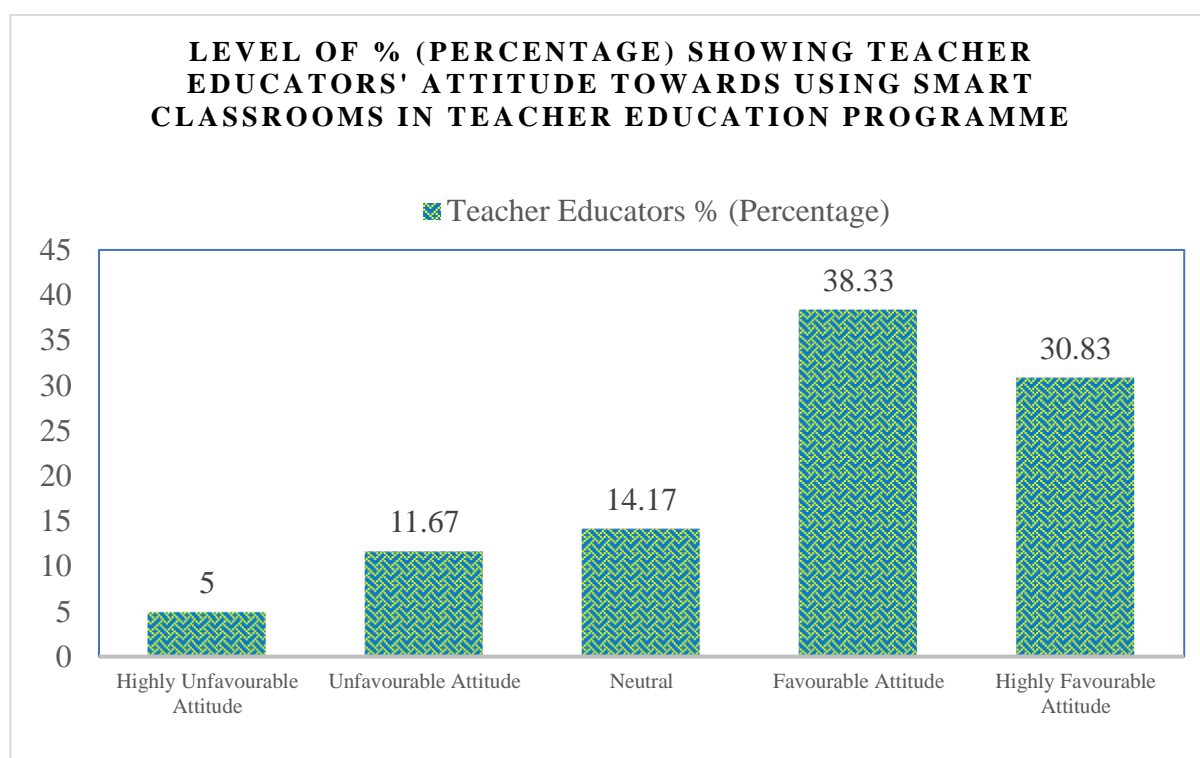


Fig: 3.0

The above table (Table 3.0) shows the level of percentage of teacher educators on attitude towards using smart classrooms in teacher education programme. The table shows that highest percentage i.e. 38.33% teacher educators have favorable attitude, 30.83% teacher educators have highly favorable attitude, 14.17% teacher educators kept themselves neutral, 11.67% teacher educators have unfavorable attitude and only 05% teacher educators have highly unfavorable attitude towards using smart classrooms in teacher education programme.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

---

## Digital Library

Digital library is a platform of many digital objects like various books, journals, magazines, audio, videos and verity print materials and other documents that are accessible electronically easily. According to Jenn Riley, “A digital library is a networked collection of digital objects – text, still images, moving images, sound, data – with arrangement, search features, and metadata that allow for discovery and presentation, supporting research and teaching, and with attention paid to architecture, persistence, longevity, and digital preservation.” Digital libraries provide online access to a wide range of resources for learning for user. They are often used by students for research or by professionals to stay current on the latest developments in their field. Digital libraries can provide users with access to rare and out-of-print materials that may be difficult or impossible to locate in a physical library. Digital libraries also offer various search and sorting features, as well as features such as social media that can connect users to discuss topics with others. As digital libraries continue to evolve, new features such as multimedia content, data visualization tools, and interactive experiences are being added to software to make digital libraries more engaging and helpful. During covid digital library broadly uses as user could not get out from home, so they use this platform for education. Many digital libraries like National Digital Library of India provide 3.5 crore materials for students to study at home. Now days digital library frequently using by research community. Many digital libraries like National Digital Library of India provide 3.5 crore materials for students to study at home. Digital libraries certainly have much wider scope; There are No physical constraints and low maintenance cost compared to old libraries.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

**Table 4.0 Showing the level of percentage of teacher education institutes' teacher educators on attitude towards using digital library in teacher education programme (N=120)**

Level	Teacher Educators	
	N	% (Percentage)
Highly Unfavourable Attitude	4	3.33
Unfavourable Attitude	15	12.5
Neutral	7	5.83
Favourable Attitude	59	49.17
Highly Favourable Attitude	35	29.17
<b>Total</b>	<b>120</b>	<b>100</b>

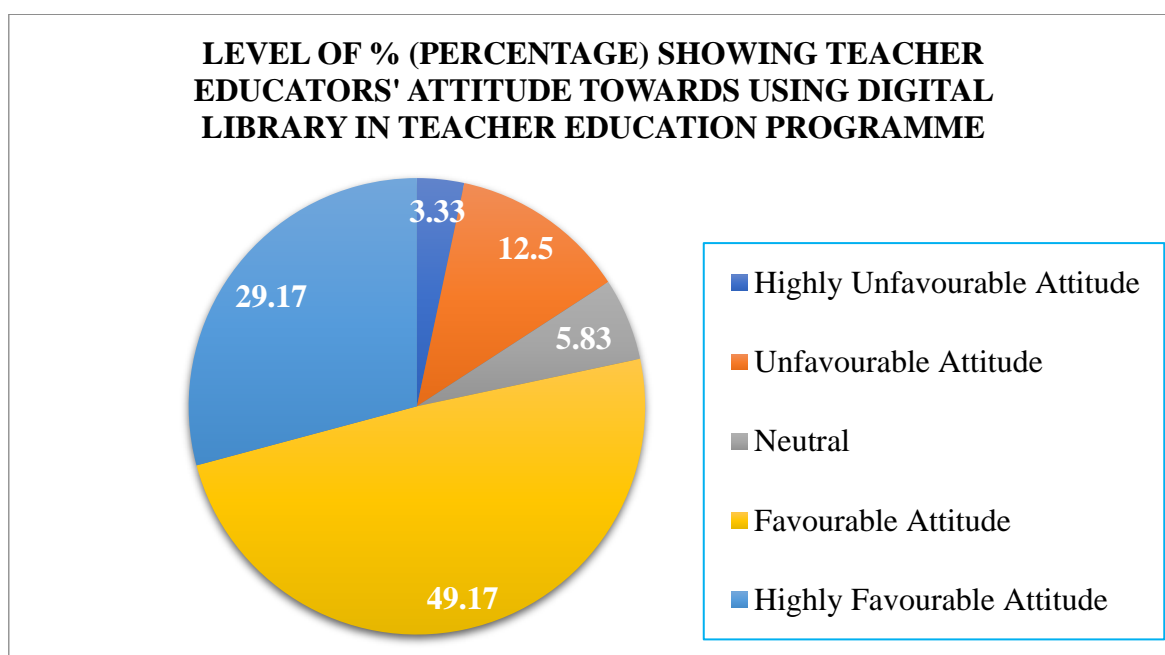


Fig : 4.0



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

The above table (Table 4.0) shows the level of percentage of teacher educators on attitude towards using digital library in teacher education programme. The table shows that highest percentage i.e. 49.17% teacher educators have favorable attitude, 29.17% teacher educators have highly favorable attitude, 5.83% teacher educators kept themselves neutral, 12.5% teacher educators have unfavorable attitude and only 3.33% teacher educators have highly unfavorable attitude towards using digital library in teacher education programme.

## Delimitation of the Study

The proposed study will be delimited to the following aspects:

- i. The proposed study will be delimited to only Murshidabad district.
- ii. The proposed study will be conducted in only the area of teacher education institutions.
- iii. The proposed study will be conducted on teacher educators' only.

## Significance of the Study

As we know that teacher education programs train pupil teachers, so it is necessary to specifically observe the attitude of teacher educators towards modern trends of technology in teacher education programs and this is why researchers try to find out the attitude of teacher educators towards modern trends of technology. In this study it is clear that majority of teacher educators have favourable attitude towards the modern trends of technology in teacher education program and some teacher educators still not decided and kept themselves neutral. The researcher also believes that in the increasingly developing world, the attitude of the teacher educators will change in the future with the majority of teacher educators' positive attitude towards the modern trend of technology in education will increase. Virtual Reality (VR) and Artificial Intelligence (AI): these two are new innovations in the modern education system in recent times and use of this technology in education system is rapidly increasing in

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

---

developed countries. This study can help the further researcher to know the attitude of present teacher educators' towards modern trends of technology.

## Conclusion

We live in an age when we are all surrounded by innovations and these are growing rapidly, the current education system is also driven by new technologies. The education system has changed and evolved over the ages from ancient to present times. The education system has continuously improved and is being further improved by technology these days. Many studies related to educational technology have been formulated earlier and many studies are currently underway, so that we can easily understand the attitude of teacher educators and new generation of students towards technology acceptance and their attitude towards innovation in education and adoption of new trends of technology. From the above study we can easily understand that there is acceptance of new technology in education, although technology has some bad qualities such as high cost, loss of privacy, mental barrier, hindrance in child's intellectual development, but most of the people, educators and students have accepted positively that in the current context, technology play very important role in the education system.

## References:

- Adhya, Debolina & Panda, Santosh. (2022). Teacher educators' attitude towards technology-enabled learning and its incorporation into teaching-learning during and post-pandemic. *Educational Media International*. 59. 1-19. 10.1080/09523987.2022.2101204.
- Afshari, Mojgan. 2009. "Factors Affecting Teachers Use of ICT." *International Journal of Instruction* 2(1): 77-104.
- Ahmed, Md & Rokonzaman, Md & Hossain, Md. (2022). Teacher Educators and Trainee Teachers' Attitude toward Online Teacher Education Courses. *Jurnal Pendidikan*. 23. 78-90. 10.33830/jp.v23i2.3333.2022.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

- 
- Ahmed, S., & Kazmi, H. H. (2020). Teacher educators' attitude towards the pedagogical use of ICTs: A study from Karachi, Pakistan. *Journal of Education and Educational Development*, 7 (2), 369–386. <https://doi.org/10.22555/joed.v7i2.67>
- Aldunate, R., & Nussbaum, M. (2013). Teacher adoption of technology. *Computers in Human Behavior*, 29(3), 519–524. <https://doi.org/10.1016/j.chb.2012.10.017>
- Ali, M., & Parveen, R. (2013). Teacher training: Teacher education in transition. *Dawn*, January, 7.  
[https://ecommons.aku.edu/cgi/viewcontent.cgi?article=1126&context=pakistan\\_ied\\_pdck](https://ecommons.aku.edu/cgi/viewcontent.cgi?article=1126&context=pakistan_ied_pdck)
- C., Thanavathi. (2021). Attitude towards digital media among teacher educators. 5. 10-13.
- Christensen, R. (2014). Effects of technology integration education on the attitudes of teachers and students. *Journal of Research on Technology in Education*, 32(4), 411–433. <https://doi.org/10.1080/15391523.2002.10782359>
- Kusano, K., Frederiksen, S., Jones, L., Kobayashi, M., Mukoyama, Y., Yamagishi, T., Sadaki, K., & Ishizuka, H. (2013). The effects of ICT environment on teachers' attitudes and technology integration in Japan and the US. *Journal of Information Technology Education: Innovations in Practice*, 12(1), 29–43. <http://jite.org/documents/Vol12/JITEv12IIPp029-043Kusano1210.pdf>
- Mahajan, Gourav. (2016). Attitude of Teachers towards the use of Technology in Teaching. *Educational Quest- An International Journal of Education and Applied Social Sciences*. 7. 141. 10.5958/2230-7311.2016.00031.3.
- NCTE. (2020). National council for teacher education recognized institutions-West Bengal. [https://ncte.gov.in/Website/Recognitionlist\\_west\\_bengal.aspx](https://ncte.gov.in/Website/Recognitionlist_west_bengal.aspx)

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 107 - 124

---

Rana, Nishta. (2012). A study to assess teacher educators' attitudes towards technology integration in classrooms. Trends and Practices. 2. 190-205. 10.52634/mier/2012/v2/i2/1569.

Rani, Sarla. (2022). Attitude of senior secondary school teachers towards using new technology in teaching learning.

Sudhakar, S.B.: Technological Advances and Role of ICT in Teacher Training and Higher Education. University News, 45(26), 12, June 25-July 1, 2007.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

## Utilization of Technology for English Language Teaching in 21st Century Classroom

Dr. Debolina Mukherjee

Assistant Professor, Department of Education, JIS University

Agarpara, Kolkata, West Bengal, Mail.id: [debolina.mukherjee@jisuniversity.ac.in](mailto:debolina.mukherjee@jisuniversity.ac.in)

---

### Abstract

This is a conceptual study that makes an earnest attempt to address the discourse of educational technology within the purview of English language teaching. 21st century students need to be prepared for meeting the myriad challenges and dynamic demands of today's society which is marked by technological advancements. Technology-enriched pedagogical approach should be deemed as the most crucial feature of today's English classroom. This study, thereby, focuses on the cognizance about the inevitability of technology application in the 21<sup>st</sup> century education, specially highlighting its role in enhancing the process of English language teaching. This study does not merely show the advantageous side of technology-based education, but also pinpoints the hindrances that English teachers may face while applying technology in classrooms. Lastly, it deals with the importance of technology for making the English classroom meaningful and advanced.

**Keywords:** Technology, Education, English Language Teaching, 21st Century Classroom

### Introduction:

In 21st century world marked by globalization, dynamism, advancement of scientific knowledge and technological revolution and modernization, every individual needs to be cognizant about technology in all walks of life. Be it social, academic or professional life, the demand of technology is high. Technology makes our life at ease. In the domain of education too, application of proper technology promotes faster and more comprehensive learning

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

processes. In the realm of teaching and learning modern technology is usually perceived as the innovative employment of methods, tools, techniques, instruments, materials, equipment, systems, strategies and approaches which help to achieve the desired educational outcomes (Raja & Nagasubramani, 2018). Noticeably, the motto is enhancement of the quality of education but not at the cost for students' additional load but through perfecting teaching forms and methods, for example, by implementing educational technologies where the aim will never be mere transfer of knowledge, rather acquisition of deep understanding and insights, and also building important abilities and qualities of the individuals (Silva, 2021). Information and Communication Technology has become a fundamental part of today' academic life; specially its growing use in assessment practices, including computer-based testing and automated evaluation systems, are very visible now a days. To enhance access, equity, quality, and efficiency in India's educational system and better prepare pupils for the demands of the twenty-first century, technology incorporation into learning environments is essential. However, India's National Education Policy (NEP) 2020 highlights the need of integrating technology into the classroom as a means of reinventing the learning setting. It describes how developing a supportive digital infrastructure (such as internet, digital devices, and digital learning resources) is vital for education at all the stages. Digital literacy should be imparted from the initial stage of education (Drossel & Ball 2019). This policy also stresses on the facility of online education, open educational resources (OER) so that today's generation gets the scope to obtain high quality learning content across different subjects and languages, and thereby, knowledge dissemination can be widespread. Nevertheless, NEP 2020's emphasis on the fact that integration of technology presents opportunities for meaningful reform if leveraged judiciously (Aithal & Aithal, 2020). Since technology offers numerous chances to improve the pedagogical approaches that are frequently contrasted with traditional teaching approaches, it is widely acknowledged as a valuable educational and supporting tool in a variety of teaching

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

and learning contexts. Thus, progress emerges from both updating content and empowering educators to creatively engage curious minds.

## **Problem Statement:**

The problem can be stated as “Utilization of Technology for English Language Teaching in 21st Century Classroom”. The statement of the problem suggests its three chief components which are usage of technology, English language teaching and twenty first century classroom environment.

## **Research Questions:**

This study aims at answering the following research questions.

- I. How technology can be defined?
- II. What is the role of technology in 21st century education?
- III. How technology can be integrated with language teaching method?
- IV. What advantages can technology potentially bring to the English classroom?
- V. What are the challenges of technology implementation in English language teaching?

## **Methodology:**

This research article is based on the prior literature. Previous studies concerning the discourse of educational technology, its application in education, its utilization in English language teaching were studied and reviewed by the researcher. The sources of relevant literature consisted of books, journals, thesis and other internet sources. After collecting the necessary data from these sources, the researcher conducted content analysis, and presented the descriptive summarization of the findings.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

## Discussion on Study Findings:

After the critical review of previous studies on the concerned topic, the obtained findings are summarized and discussed below-

### Discussion relating to the 1st Research Question

Technology is a means to an end, particularly through the usage of technical procedures, methods, or expertise (İşman, 2012). Utilization of technology not only encompasses machinery (computer hardware) and devices but also organized interactions with other people, machines, and surroundings (Prayudi, 2021). Today we have easier access to information with the help of multimedia technology that combines audio as well as the visual animation effects in a natural and efficient way. The wide definition of "technology" denotes the real-world utilization of scientific knowledge, particularly in industry. It includes a vast array of equipment, systems, and techniques that make life easier and more enjoyable for individuals, boost productivity, and address issues for solutions. Technology encompasses not just tangible assets like computers and cell phones but also immaterial ones like software and algorithms. Its use is not static, rather it goes through continuous changes through innovation, and thereby, it serves essential role in moulding societies, cultures, economics all across the world. In simple terms, technology is about leveraging knowledge to make tools that better our lives and improve our capabilities. Technology can be deemed as an empowering tool having the potential to alter the nature of learning. In light of the fact that technology is a complicated, dynamic, and ever-evolving aspect of modern society and the world, it is critical that we approach its role in our own spheres of influence with knowledge. Technology is what we utilize to support us in teaching, and instruction is how we do it. Technology is not a prerequisite for instruction to take place. But technology can also be utilized to support instruction. Educational technology is what we utilize to support us in teaching. Noticeably, technology is not a prerequisite for instruction to take place, but it can facilitate instruction.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

Noticeably, anything that can be utilized to assist us for simplifying our tasks, does not necessarily have to be electronic. From this standpoint, a suitable definition of technology would be framed as an orderly integration of scientific and other systematic knowledge to pragmatic activity. Technology primarily aims to improve people's lives by increasing convenience, efficiency, and overall well-being (Moursund & Bielefeldt, 1999).

## **Discussion relating to the 2nd Research Question**

It is very needed to take care that no young students lag behind while trying to cope up with the requirements and demands of the contemporary world. Students must possess the capacities and the skills that would support them to effectively fit into the current scenario. Here comes the discourse of technological application in classroom teaching. Utilizing technology students and teachers both can be able to gain various essential abilities and skills to be successful in the present as well as in the future. Technology is a key component of education in the twenty-first century, as it has shifted the conventional teaching techniques and improved possibilities for learning in a number of ways. 1) Firstly, Information accessibility -Due to technology teachers and the taught can have an easy and fast access a plethora of data online, enabling them to learn and do research beyond typical classrooms relying on only textbooks and limited resources (Rodinadze and Zarbazoaia, 2012). In fact, Multimedia technology containing features of audio as well as visual animation effects naturally, and effectively make us have more access to information. With the help of multimedia technology that organically and effectively combines audio and visual animation effects, the access to information has been highly increased. Multimedia technology provides the essence of realism, and works incredibly well because of its many features, which include bridging time and space, providing an abundance of information (Prayudi, 2021). 2)Enhanced Communication and Collaboration: Use of different types of tools like email, messaging applications, video conferencing, and online forums assist in knowledge exchange as well as enhancing the communication among

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

students, and between teachers and pupils. While using technology students are stimulated to work in diverse teams and collaborate effectively to complete any learning project (Saeed & Zyngier, 2012). 3) Practical Skills: Technology is valuable in the cultivation of a wide range of practical skills, such as email writing, making presentations, recognizing trustworthy sources on the Internet from untrustworthy ones, and adhering to appropriate online behavior. 4) Critical Thinking and Problem-Solving: While employing technology for learning purposes students get the chance to exercise critical thinking and problem-solving skill. Use of technology demands from students the analytical capacity to probe into given topic. 5) Innovation and creativity: With the use of technology, educators and learners can experiment with novel teaching strategies, investigate creative ideas, and produce multimedia projects that demonstrate their knowledge and inventiveness (Thieman, 2008). 6) Personalized Learning: All the learners are not of same abilities or potentialities, but every child needs to be taken care of. In this dichotomous situation use of adaptive learning technologies and personalized learning platforms plays the role of great helper as they can customize instructional content and speed to meet the various preferences, needs, and learning styles of each individual learner. Thus, integration of technology also upholds the principle of inclusivity which ensures that students with diverse needs and disabilities will not be deprived of quality education in terms of educational opportunities. 7) Joyful Learning context: Provisions for interesting educational apps, gamification, augmented reality (AR), simulated reality etc. make learning more dynamic, involving and joyful, leading to greater understanding and long-term retention of topics (Koumpouros, 2024). 8) Increased Confidence Level: However, as students venture into the world of multimedia technology, they have a myriad of different possibilities to practice and build confidence in their learning. 9) Ongoing Education and Professional Advancement: Virtual classes, webinars, online Faculty Development Programme and e-learning sites allow teachers to continue their education throughout their lives, remain current with pedagogical advances, and connect with colleagues around the world. 10) Global Connectivity: Teachers as

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

well as students may link with classmates, peers, professionals, and resources from other nations and cultures through technology, which promotes internalization of education and global consciousness (Andersson. Et al., 2016). Thus, technology builds these capabilities among learners which enable them to adapt successfully to the challenging demands of contemporary society. And thereby, the students can remain prepared to survive and prosper in this digitally connected, fast evolving world.

## **Discussion relating to the 3rd Research Question**

With the amazing advent of technology, the practice of teaching English has undergone a significant transformation. One of the main forces behind linguistic and social development is technology. The wide array of technologies available for language teaching and learning includes radio, TV, CD player, DVDs, electronic dictionary, online thesauruses and grammar guides, audio cassettes, audio books, power point videos, (Madhavaiah, et al., 2013). Again, modern technologies like computers, internet, iPads, laptops, skype and smartphones have opened up a new world of information for students of all ages. Incorporating gamification into the learning environment through educational platforms is another trigger for motivation (Dichev, & Dicheva, 2017). Educational games help students in practicing vocabulary, and even makes grammar more enjoyable. Websites like NoRedInk or Vocabulary.com offer interactive exercises and games for practicing grammar & vocabulary. Digital quizzes, solving crossword puzzles, or find out the word -all these online games aids in faster English learning along with developing critical thinking and creativity skills. Virtual Reality (VR) applications like Google Expeditions or ENGAGE offer immersive learning experiences where learners are able to explore historical events, literary settings, or different cultures. Digital tools such as online discussion forums, chat applications, collaborative writing platforms (e.g., Google Docs), and video conferencing enable students to engage in teamwork and also foster English communication skills. Students can work together on projects using digital tools, share their

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

work online, and provide peer feedback. Platforms like Edmodo and Microsoft Teams facilitate group work and communication. Besides, there are many good free app for enhancing language fluency, and facilitating English conversation. These interactive English learning apps, simulations, and multimedia presentations make English learning more engaging, and help the learners to grasp complex concepts of English literature, grammar in effective way (Metruk, 2021). There are certain popular and effective English language learning apps suitable for different educational levels. For primary education there are Duolingo (gamified lessons to build vocabulary and grammar skills), ABCmouse (interactive reading), Starfall (Phonics, vocabulary building, and comprehension exercises). There are Quizlet (vocabulary building), Grammarly (Grammar and spell check, writing style suggestions, plagiarism detection), Read Theory (adaptive reading comprehension) and so on, applicable to secondary and higher education. Development of Language laboratory plays important part in English language teaching. In this context, technology is of tremendous help. Use of technology gives the scope of increased access to native language models where students obtain the exposure to authentic language use through the usage of recorded tapes and cassettes. Students can listen to podcasts, watch videos, and participate in virtual exchanges with native speakers, helping them develop a more accurate understanding of pronunciation, intonation, and idiomatic expressions. Digital platforms provide access to e-books, online journals, and writing tools that help the learners upgrade their English reading, comprehension and writing skills through interactive exercises and instant feedback (Machwate. et al., 2021). Technology becomes beneficial in terms of real-world language application. Technology connects classroom learning with real-world applications. Students can use technology to participate in real-life tasks such as creating blogs, digital stories, participating in online forums, or composing professional emails, helping them understand the practical use of English. These innovative uses of technology can help make English teaching more dynamic and participatory.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

## Discussion relating to the 4th Research Question

The advantageous use of technology helps teachers accomplish many specific objectives in the field of education, and particularly for students studying foreign languages and literature.

1) Language learners have access to an infinite number of resources by means of technology (Bull and Ma, 2001). English learners can be benefitted from adopting appropriate technology resources (Clements and Sarama, 2003). 2) With the practice of technology, students can become active learners instead of passive recipients, and experience more in-depth and enriching language immersion. 3) Teachers should motivate English language learners to use computer technology to locate relevant classroom activities, and regard computers as significant teaching aid (Becker, 2000), (Harmer, 2007). 4) Students remain engaged when they use educational technology to learn English inside as well as outside the classroom. This is because, of the modern features like voice recognition and interactive multimedia exercises etc. Learners now generally feel more at ease using electronic gadgets when learning a language. Using a tablet or smartphone to learn is far more engaging for younger students than using a book. 5) Students can complete their English course with all-inclusive educational apps that function synchronously and even offline. Educators can assign homework assignments or configure lessons to be reviewed at home prior to class. 6). When combined with supporting technologies, the flipped classroom approach in English classes creates an ideal atmosphere for collaboration by means of idea sharing, debates and discussion, and developing projects. It's a method of putting interactive, creative, dynamic approaches into practice. Thus, delivery of English lessons becomes more stimulating for students, which in turn encourages student participation (Hattie, 2015). Thus, technology plays beneficial role in enhancing 4Cs among learners. 7) Development of Language Skills: Both inside and outside of the classroom, students can practice and enhance their English language skills with the help of language learning applications, pronunciation aids, and language exchange platforms. 8) It takes into account different learning styles of English learners. Spoken language is more

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

engaging for auditory learners than written language. For these students, podcasts, audiobooks, and recorded lessons can be used. But visual learners depend more on sight than auditory cues. For these kinds of pupils, interactive whiteboards, eBooks, films, PowerPoint lessons with graphs are excellent options for incorporating technology into the classroom. Tactile learners can be encouraged to make use of their sense of touch since they learn better through active engagement. Technology excels in this situation since it is highly interactive. It is particularly tactile to let pupils handle gadgets, swipe displays, and click on mouse. 9) Cultural awareness & Global perspectives: Students can study different points of view and broaden their awareness of English-speaking cultures through virtual field trips, video chats with guest speakers, and exposure to authentic cultural texts available online. However, as per prevalent pedagogical theories, students can enhance and refine their language proficiency more effectively by leveraging technology's learning capabilities (Gilakjani, 2013).

## **Discussion relating to the 5th Research Question:**

Though there are lots of teachers who are already incorporating technology, but the unfortunate reality is that most teachers in India are found to be instructing their students in the monotonous conventional way which is devoid of the inventiveness of technological application. It is necessary to find out the reasons behind their no interest in technology adoption in classroom situation. Because teachers most face various hindrances while they attempt to implement technology (Patel & Patel, 2019). In the context of English language teaching in India, several unique challenges arise with the use of technology. These challenges can affect both the effectiveness of teaching and the learning outcomes. Here are some specific challenges faced by the teachers- 1) Inadequate technological infrastructure and inconsistent internet connectivity are significant barriers. Many schools, particularly in rural or underserved areas, lack reliable internet access and modern hardware, basically this digital divide can also hinder the effective implementation of technology in English classrooms (Jha & Kumar, 2018). 2)

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

Teacher Training and Professional Development- Effective use of technology requires proper training for educators. Many teachers may lack the necessary skills or knowledge to integrate technology into their teaching practices effectively. Professional development programs may be limited or insufficient. 3) Content Relevance and Quality: Ensuring that digital content is relevant and of high quality is crucial for effective learning. There may be a lack of locally relevant content that aligns with the Indian curriculum and caters to the diverse linguistic backgrounds of students. 4) Language Barriers- English is often taught as a second language in India, and technology tools may not always cater to the linguistic diversity of students. Tools and resources may not be available in regional languages. In most of the cases, Bengali, Hindi medium school students whose first subject was not English, are found to be afraid and hesitant to use technological devices or engage in online activities as the language of technology is English (Chakraborty, 2020). 5) Cost and Funding: The financial burden of acquiring and maintaining technological resources can be considered as another challenge. Schools may face budget constraints that limit their ability to invest in technology, purchase necessary equipment, or provide ongoing support and maintenance. 6) Resistance to Change: There may be resistance to adopting new technologies among teachers, students, or institutions. Not all students may be ready or motivated to use technology for learning. Traditional teaching methods are deeply entrenched, and there may be reluctance to change or skepticism about the effectiveness of new technological approaches. 7) Distraction and Misuse: Technology can sometimes become a distraction rather than a learning tool. Students may use devices for non-educational purposes during class, impacting their engagement and focus on English language learning (Kirschner & Bruyckere, 2017). 8) Support and Maintenance: Ongoing technical support is necessary for effective technology use. Many schools lack adequate technical support staff, leading to issues with device maintenance, software updates, and troubleshooting. These are the main limitations of technology that teachers, students generally



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

---

encounter while they engage themselves in application of technology in real classroom situation.

## Conclusion

Nevertheless, twenty first century society has witnessed how technology has played the role of catalyst for the driving shift in numerous aspects. All facets of teaching learning process are effortlessly infused with technology, which improves communication, collaboration, information access, and individualized learning opportunities. With the usage of computational technologies, all educational institutions nowadays aim to augment the learning potential of their pupils. Technology is developing at an incredibly rapid rate. The amalgamation of modern technology into language instruction has emerged as the ideal supplement to an all - encompassing education, enabling the young learners to reach a high level of English language competency.

## References

- Aithal, P. S., & Aithal, S. (2020). Analysis of the Indian National Education Policy 2020 towards Achieving its Objectives. *International Journal of Management, Technology, and Social Sciences (IJMTS)*, 5(2), 19-41.
- Andersson, U., Dasí, Á., Mudambi, R., & Pedersen, T. (2016). Technology, innovation and knowledge: The importance of ideas and international connectivity. *Journal of World Business*, 51(1), 153-162.
- Becker, H. J. (2000). Findings from the teaching, learning, and computing survey: Is Larry Cuban, right? *Education Policy Analysis Archives*, 8(51). Doi: <http://dx.doi.org/10.14507/epaa.v8n51.2000>.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

- 
- Becker, H. J., & Park, J. (2019). The impact of technology on student learning outcomes in higher education. *Journal of Educational Computing Research*, 57(3), 728-743. <https://doi.org/10.1177/0735633118785366>
- Bull, S., & Ma, Y. (2001) Raising learner awareness of language learning strategies in situations of limited recourses. *Interactive Learning Environments*, 9(2), 171-200. Doi:10.1076/ilee.9.2.171.7439.
- Chakraborty, M. (2020). Challenges of technology integration in Indian classrooms: A review. *International Journal of Educational Research and Technology*, 11(2), 72-80.
- Clements, D. H., & Sarama, J. (2003). Strip mining for gold; research and policy in educational technology-a response to fool's gold. *Educational Technology Review*, 11(1), 7-69. <https://eric.ed.gov/?id=EJ673505>.
- Dichev, C., & Dicheva, D. (2017). Gamification in education: A systematic review of the literature. *Educational Technology & Society*, 20(3), 75-88.
- Drossel, K., & Ball, J. (2019). Technology integration in education: A review of studies. *Journal of Educational Technology & Society*, 22(4), 23-38. <https://www.jstor.org/stable/jeductechsoci.22.4.23>
- Gençler, B. (2015). How does technology affect language learning process at an early age? *Procedia – Social and Behavioral Sciences*, 199(2015), 311 – 316. Doi: 10.1016/j.sbspro.2015.07.552.
- Harmer, J. (2007). *The practice of English language teaching*. England: Pearson. [www.worldcat.org/title/practice-of-English-language-teaching/oclc/149005881](http://www.worldcat.org/title/practice-of-English-language-teaching/oclc/149005881)
- Hattie, J. (2015). The impact of digital technology on learning: A meta-analysis and review. *Computers & Education*, 88, 201-212. <https://doi.org/10.1016/j.compedu.2015.07.001>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

- 
- Hattie, J. (2015). The impact of interactive whiteboards on student achievement: A meta-analysis. *Computers & Education*, 80, 79-84.  
<https://doi.org/10.1016/j.compedu.2014.08.013>
- Jha, A. K., & Kumar, R. (2018). Digital divide and access to technology in Indian education: An empirical study. *Journal of Educational Technology & Society*, 21(4), 167-179.  
<https://www.jstor.org/stable/10.2307/26458734>
- Kirschner, Paul & De Bruyckere, Pedro. (2017). The myths of the digital native and the multitasker. *Teaching and Teacher Education*. 67. 135-142.  
10.1016/j.tate.2017.06.001.
- Koumpouros, Y. (2024). Revealing the true potential and prospects of augmented reality in education. *Smart Learning Environments*, 11(1), 2.
- Madhavaiah, G., Nagaraju, C., & Peter, S. (2013). Importance of technology in teaching and learning English Language. *International Journal of Scientific Research and Reviews*, 2(3), 146-154.
- Machwate, S., Bendaoud, R., Henze, J., Berrada, K., & Burgos, D. (2021). Virtual exchange to develop cultural, language, and digital competencies. *Sustainability*, 13(11), 5926.
- Metruk, R. (2021). The use of smartphone English language learning apps in the process of learning English: Slovak EFL students' perspectives. *Sustainability*, 13(15), 8205.
- Moursund D., & Bielefeldt T. (1999). Will new teachers be prepared to teach in a digital age? *International Society for Technology in Education*, Milken.; 01(01): 01-03.
- Muilenburg, L. Y., & Berge, Z. L. (2015). The role of mobile technology in education: A review of research. *Journal of Educational Technology & Society*, 18(2), 80-92.  
<https://www.jstor.org/stable/jeductechsoci.18.2.80>

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 125 - 139

- 
- NEP (2020)): Policy document released by Government of India. Retrieved from [https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English.pdf)
- Patel, M., & Patel, R. (2019). Evaluating the impact of technology on English language learning in Indian schools. *Journal of Language Teaching and Research*, 10(3), 456-465. <https://doi.org/10.17507/jltr.1003.09>
- Pourhossein Gilakjani, A. (2013). Factors contributing to teachers' use of computer technology in the classroom. *Universal Journal of Educational Research*, 1(3), 262-267. Doi: 10.13189/ujer.2013.010317.
- Prayudi, R. A., Hakiki, A. K., Putra, N. R. D., Anzka, T. O., & Ihsan, M. T. (2021). The use of technology in English teaching & learning process. *Jurnal Riset Dan Inovasi Pembelajaran*, 1(2), 102-111.
- Raja, R. & Nagasubramani, P. (2018). Impact of modern technology in education. *Journal of Applied and Advanced Research*. 3. 33. 10.21839/jaar. 2018.v3iS1.165.
- Saeed, N., & Zyngier, D. (2012). The role of technology in education: A review of literature. *Educational Technology Research and Development*, 60(4), 593-618.
- Silva, Udara Joseph (2021). *Utilizing Technology in the Classroom*. Dissertation, Department of Education, Selinus University.
- Thieman, G. (2008). Using technology as a tool for learning and developing 21st century skills: An examination of technology use by pre-service teachers with their K-12 students. *Contemporary Issues in Technology and Teacher Education*, 8(4), 342-366.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

---

## **A Sociological Study on Attitudes of Santal Tribal Parents Towards Girls' Education on Literacy and Socio-Economic Status in Paschim Medinipur District, West Bengal**

Mrs. Labani Mandal

Asst. Prof. & HoD, Dept. of Sociology, Belda College  
Belda, West Bengal, India, Email: [labani333@gmail.com](mailto:labani333@gmail.com)

Dr. Arindam Pahari

State Aided College Teachers (SACT)  
Dept. of Sociology, Belda College, Belda  
Paschim Medinipur, West Bengal, India. E-mail Id: [arindam.pahari100@gmail.com](mailto:arindam.pahari100@gmail.com)

---

### **Abstract**

The aim of the present study was to assess the attitude of Santal Tribal parents towards their girl's education. This study was delimited to the tribal parent belonging to Santal Tribe of Paschim Medinipur District in West Bengal. For this study, descriptive survey method was employed. The study analysed the data of 100 Santals Tribal parents, including 100 Literate and 100 Illiterate Santals Tribal parents, using purposive sampling method. In order to collect data in the present study, the investigator used attitude scale. Mean scores were calculated separately for literate and illiterate samples and for low-socio-economic and high-socio-economic respondents. The 't' test was used to test the significance of differences between literate Santals Tribal parents and illiterate Santals Tribal parents as well as high-socio-economic and low-socio-economic tribal parents in their attitudes towards their girls' education. Finally, it was found that the literate Santals Tribal parents have more better attitude towards education of their girls' than illiterate Santals Tribal parents. Also, the high socio-economic status Santals tribal parents have more better attitude towards education of their girls' than low socio-economics Santals Tribal parents.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

---

**Key words:** Santal Tribal Parents, Literacy, Socio-Economic Status, Literate, Illiterate, Girls' Education, Parental Attitudes.

## Introduction

*“Education is the manifestation of perfection already in man.”*

- Swami Vivekananda

Education is an essential human virtue. It is one of the primary agents of conversion Development. Education plays an important role in the development of a person's mind and country. The need for improved levels of educational participation for overall progress is well recognized. Ignorance and poverty are major speed breakers in fast developing India and can be easily overcome through education. India is a pluralistic country, with rich diversity, reflected in a multitude of cultures, religions, languages and ethnic stocks. Indian population consists of various castes, communities and social groups. The prevalence of such pluralism has stratified and stratified the social structure. As a result, social and educational opportunities are distributed differently on the basis of caste and class. Even a cursory glance at the prevailing social scenario will reveal that Scheduled Tribes are among the most socially, economically and educationally backward groups in India.

Santal Tribals are one of the most exploited and deprived sections of the population in Indian society. They are the most deprived in all indicators of development despite various policies and programs being followed for their improvement in the post-independence period. It goes without saying that exclusion from the fruits of development has adversely affected the quality of life of the indigenous people. Low educational attainment is perhaps the most pervasive social problem that afflicts Santal

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

Tribal girls. Education has not yet been prioritized in Santal Tribal communities, has not yet become an integral part of Santal tribal culture. This is a harsh reality despite 78 years of planned development in this country. In their perception of life, education failed to emerge as part of their survival strategy. Lack of Santal parental attitude towards education is contributing to low educational achievement of indigenous girls.

## 1.1 Parental Attitude

Appraisal is the result of a person's mindset. Attitudes can be negative or positive and can be influenced by education. Education and training work to create positive links between people of different races and religions and reduce hatred. The full involvement of Santal parents in their girl's education is referred to as their parenting attitude and is particularly important for educating girls effectively. Parents should have a positive attitude towards their children's education as it increases parental engagement in the girl's current and future studies and encourages the girl's personal and social development. Low socio-economic status (SES) has a significant impact on parents' attitudes toward their girl's education. Since Santal Tribal parents have low socio-economic status (SES), they are assumed to have negative attitudes towards their girls' education.

## 1.2 Girls' Education

Girls' education is an important issue in India today. Education is essential for every child in the country irrespective of gender. Due to the prejudices of some communities, women are still unable to get a good education. Women and girls do not have access to education in underdeveloped countries. Lack of education negatively affects household income, health care and aspirations. It also reduces a country's economic growth and increases the possibility of human trafficking of girls and women. For girls and women to succeed, they should be given

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

the same respect and equal opportunities that boys and men are given. While some girls are able to advance in life, even in these adverse conditions, many are unable to do so because of their community's customs, culture and patriarchy. It is believed that girls should only focus on being ideal daughters, sisters, wives and mothers and perform household chores. It is widely believed that women are not equal to men and their views are not considered when decisions are made within the family.

### 1.3 Universal Primary Education – National Goal of India

Education is the most important basic right and prerequisite for the development of any country. India's literacy rate as of 2011 census is now 74.4(%) percent, while the illiteracy rate is 25.96(%) percent. This indicates that the Government of India is yet to achieve 100% literacy rate. As of 2011 census, male literacy rate is 82.14 (%) percent and female literacy rate is 65.46 (%) percent. The literacy rate of SC is 54.27 (%) percent and that of ST is 46.965 (%) percent. The Government of India has taken several incentives to eradicate illiteracy for those who have not attended school at all.

Article 46 of the Constitution states that the State shall promote the educational interests of Scheduled Castes and Scheduled Tribes with special care. Article 45 of the Constitution lays down the guiding principle of State policy for achieving universal primary education among children up to the age of 14 within 10 years of the promulgation of the Constitution. Government has extended the target date. But there are some major problems in achieving this target such as enrollment, retention and achievement among SC and ST and girl children under Ministry of Welfare, Human Resource Development.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

---

## 1.4 Primary education for tribals in India

Education of tribals has a catalytic effect on every dimension of economic development including higher productivity, faster growth, higher economic gains and a step towards empowerment of tribal people. Promotion of indigenous education has been a concern of India since independence. In this light central government and state government institutions and other organizations are doing a lot for the advancement of tribal education. Yet the achievement of indigenous education is far from the goal of universalization of primary education. Some of the programs that directly or indirectly help in tribal educational development are District Primary Education (DPEP), Mahila Samkhyas (MS), National Program for Girls Education at Primary Level (NPEGEL), Shikshakarim Scheme (SKP), Kasturba Gandhi Girls' School (KGBV), Public Education Organization (JSS), Mid-Day Meal Scheme (MDM), Kendriya Vidyalaya (KV), Navodaya Vidyalaya (NVS), National Institute of Open Schooling (NIOS).

## 1.5 Primary education of tribal children

India is the second most populous country in the world with a tribal population of 6.77 crore. Most of the tribals are poor, illiterate and live in remote forest and hilly areas. They lag behind other sections of the population in all spheres of life. The Government of India has launched several schemes for the promotion and welfare of education among the tribals. Despite these efforts, the education rate did not increase. In the case of old primitive tribes, it is very poor and low. Literacy is the key to the socio-economic development of any region or region, and it is this region where tribal communities across India suffer from various forms of deprivation such as alienation from land and other resources. In particular, they are far removed from the mainstream of national life, but they are not kept away from the impact of socio-economic changes in society in general.



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

**TABLE - 1**

**(Trends in Literacy for Scheduled Tribes in India from 1991 to 2011)**

Year	Male	Female	Total
1991	40.65	18.19	29.60
2001	59.17	34.76	47.10
2011	71.70	54.4	63.1

Source: (Registrar General of India, Census 2011)

## 1.6 The National Policy on Education 2016

The National Policy on Education 2016 recognizes education as a critical component of political, social, and economic development. It focused on the importance of education in instilling values and skills, as well as producing effective citizens. It will enable people to contribute to the improvement of the nation, enhance democracy, function as a unifying factor in society, and foster the nation-state.

- i) This policy has shown that child mortality is high, and women's health is poor. The number of tribal regions is decreasing and the number of school registrations is low.
- ii) Residential schools should be established to ensure the implementation of tribal education.
- iii) To rely on local variables in addition to the education department's duty.
- iv) Teachers should reside on campus to promote tribal education in distant locations.
- v) Many possibilities for skill education should be provided to tribal children in addition to normal educational facilities. The National Skill Development Corporation (NSDC) is also effectively implementing the same program in tribal regions (Government of India, 2016).

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

---

## 2. Literature Review

**Gupta (2010)** conducted research on the attitudes of Indigenous parents and instructors regarding education. According to the findings, mothers and fathers from rural and urban settings has positive attitudes regarding population education.

**Buzdar & Ali (2011)** conducted a study on the attitude of tribal parents towards the education of children in the Dera Ghazi Khan tribal region (Pakistan). The results revealed that the attitudes of tribal parents did not differ greatly from those of the rural families in terms of the education of their daughters and their urban family.

**Thallapally (2013)** suggested that mothers and fathers had a similar attitude towards the education of their children. The fathers of the urban and rural tribes showed comparable behaviours towards the education of their sons, but distinct attitudes towards the education of their daughters. The attitude of mothers of urban, rural, and tribal children were comparable, however, urban mothers were shown to be more democratic. Tribal mothers were less protective of their daughters and urban mothers were overprotective.

**Sahu (2014)** Tribals are typically analphabets and are unaware of the significance of education. They are not interested in schooling, as it gives them no immediate financial assistance. They are eager to include their children in any job that helps their family economy. Although some parents have a favorable schooling mindset, they cannot afford it due to their bad financial position.

**Chaudhari (2015)** studied the attitudes of parents towards medium-level education. The findings found a clear distinction between English and Gujrati's parents. There is also a considerable disparity between genders; fathers have a more favorable opinion towards education than mothers. Urban parents are more concerned about the language used to teach.

### 2.1 Objectives of The Study

1. To study the attitude of Santal tribal parents towards their girl's education.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

2. To examine the difference in attitude between Literate and Illiterate Santal tribal parents towards their girl's education.
3. To study the attitude of Santal tribal parents of high and low socio-economic status towards their girl's education.

## 2.2 Hypothesis of The Study

The hypothesis of the research were-

1. There is no significant difference between the attitude of Literate and Illiterate Santal tribal parents towards their girl's education.
2. There is no significant difference between the attitude of Santal tribal parents of high and low socio-economic status towards their girl's education.

## 2.3 Delimitation of The Study

The present field work study was delimited to the attitude of Santal tribal parents towards girls' education only has been studied. The present study was delimited to the Santal tribal parents' belongings Gaganeswar village of Keshiary block of Paschim Medinipur District of West Bengal.

## 3. Method and Methodology

The following methods and methodology were used for the present field work study:

### 3.1 *Research Method*

The research methodology of current field work research comes under the scope of descriptive survey research. Descriptive studies are designed to obtain relevant and specific information about the current state of the phenomenon. Such studies are not limited to finding information, but in many cases generate important policy, knowledge, and solutions to important problems related to local, state, national, and

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

---

international issues. Descriptive survey studies are more than just data collection, involving measurement, classification, analysis, comparison and interpretation of phenomena.

### 3.2 *Population and Sample*

All the Santal tribal parents of school going girls of Paschim Midnipur District form the population of the Present field work study. The sample of the present field work study consists of 100 Santal tribal parents of Gaganeswar village Keshiary block of Paschim Medinipur District of West Bengal.

### 3.3 *Tools and Techniques*

In order to survey the reasons for attitude of Santal tribal parents towards education. The investigator has used an attitude scale developed by Dr. Arindam Pahari dated 22.03.2024. There are 100 statements. Four answers are given in addition to each statement for convenience- 1) Strongly Disagree, 2) Disagree, 3) Agree, 4) Strongly Disagree.

### 3.4 *Procedures of Data Collection*

The investigator made personal visits to the homes of the Santal tribal parents to collect data. After reaching a village, the investigator introduces himself to the tribal parents and after establishing the purpose of his visit to the village, the work done and establishing a good personal rapport with them, asks structured questions related to their problems. All Santal tribal parents cooperated with the investigators in providing information necessary for the present research work. For identification of literate and illiterate Santal tribal parents i.e. attitude of tribal parents towards girls' education.

### 3.5 *Statistical Technique*

Statistical techniques like mean, standard deviation, "t" test have been used by the researchers in the present study to find out the significant difference between Literate and Illiterate Santal tribal parents' attitude towards their girls's education.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

## 4. Data Analysis and Results

Significance of difference between mean scores of literate and illiterate Santal tribal parents in attitude towards education of their girl's.

**TABLE-1**

Groups	<i>N</i>	<i>M</i>	<i>SD</i>	<i>df</i>	" <i>t</i> " Value	Level of significance	Result
Literate	100	55	2.634	198	9.546	0.05	Significant
Illiterate	100	51	3.278				

Table No-1 indicates that "t" value is 9.546, which is significant at 0.05 level of significance as it is more than the required critical value (1.97 for df 198). It shows that there is a significant difference between the mean scores of literate and illiterate tribal parents with regard to attitude towards education of their girl's. The mean scores of both groups indicate that educated tribal parents have better attitudes towards their girl's education than illiterate Santal tribal parents. Hence, the null hypothesis that no significant difference exists between literate and illiterate Santal tribal parents towards the education of their girl's is rejected.

Therefore, the null hypothesis that no significant difference exists between literate and illiterate Santal tribal parents towards their girl's education is rejected. Significance of difference between mean scores of Santal tribal parents of high and low socio-economic status on attitude towards their girl's education.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

**TABLE-2**

Groups	N	M	SD	df	"t" value	Level of significance	Result
High socio-economic	100	58	2.083	198	7.633	0.05	Significant
Low socio-economic	100	56	1.640				

Table No- 2 indicates that the "t" value is 7.633 which is significant at 0.05 level of significance, as it is higher than the required critical value (1.97 for df 198). It shows that there is a significant difference between Santal tribal parents of high socio-economic and low socio-economic status towards their girl's education. The mean scores of both groups indicate that high-socio-economic. Santal tribal parents have a better attitude towards their girl's education than low-socio Santal tribal parents.

Thus, the null hypothesis that no significant difference exists between high and low socio- economic Santal tribal parents in their girl's education is rejected.

## Findings

The findings of the present study are given below: -

- I. Literate Santal tribal parents have better attitude towards their girl's education than illiterate parents.
- II. High socio-economic status Santal tribal parents have better attitude towards their girl's education as compared to low socio-economic status Santal tribal parents.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

---

## Discussion of the Results

The results indicate that despite the government's efforts to provide free education to all, the respondents' attitudes were not very favourable. The findings of the present study are consistent with studies. Also, the findings supported earlier studies that literate Santal tribal parents have more favourable attitudes than illiterate ones. Lower socio-economic Santal tribal parents affect their girl's attitude towards education.

## Implications of the Study

1. Native Santal tribal teachers should be appointed in Santal tribal schools, so that it will help to increase the positive attitude of educated Santal tribal parents towards education.
2. Government should provide more scholarships and stipends to Santal tribal girls to increase their positive attitude towards education.
3. Awareness programs for Santal tribal parents should be organized through various Govt. and N.G.O. To increase the attitude of Santal tribal parents towards the education of their girl's.

This paper indicates that tribal parents' attitudes towards girls' education are primary variables, and class factors include community, gender, location, degree of education and socio-economic status. Gender does not affect girls' educational outcomes. Parents with

## Conclusion

higher levels of education and socio-economic status had more favourable views of girls' education. Girls' education is inextricably linked to tribal parental attitudes. Positive attitude of parents can be influenced by proper education. Tribal groups are among the backward classes; If they cannot go to school, education should come to them. Country will not develop until girls are educated. Social exclusion means being an uneducated girl; Therefore, girls should be provided equal opportunities and other opportunities in school. Apart from other barriers to women's education, tribal family attitudes

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413

An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare TrustE-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

play an important role. The researcher assessed the parental attitudes at different levels in this paper. This paper shows that parents must have a good attitude to educate their daughters. From childhood, their girls are inspired by their parents.

Special administrative and management systems should be put in place to ensure attendance of teachers. Providing transport facilities for female instructors and additional incentives for teachers in remote tribal areas be effective. Teachers should encourage parents to enroll their girls in school; However, some parents are reluctant to do so due to ignorance. Parents who focus on the religious education of their girl's must also inspire and motivate. It is also desirable to ensure that there is a high number of girl's school graduates. Scholarships are an excellent option for registered women and poor parents should get scholarships so that they can ensure the education of their girl's. Girls should be encouraged to avoid child marriage. To deal with social problems, higher education institutions should be developed for women education only.

Parents' economic background and employment influence their attitude towards girl's education. However, no matter how sophisticated and educated an individual is, their cultural gap still prevents them from broadening their mindset to the education of women and girls. Discrimination against gender is prevalent in society, and occurs in various forms and degrees. Both rural and urban parents have a certain amount of prejudice because, in many ways, they favor their sons over their girl's. Thus, while educated parents have favorable attitudes towards their daughters' education, parental cultural gap creates negative attitudes towards girls' education

## References

- Behera, A.K. (2015). Primary Education among tribal people of Mayurbhanj District of Odisha-An evaluative study. [www.ijhssi.org/papers/version-3](http://www.ijhssi.org/papers/version-3).
- Bordhan, S. (2014). Parental attitude towards schooling of their children. *Journal of All India Association for Educational Research*, 26(1).



# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

- 
- Buzdar, M.A., & Ali, A. (2011). Parents' Attitude toward Daughters' Education in Tribal Area of Dera Ghazi Khan (Pakistan). *Online Submission*, 2(1), 16–23.
- Census of Boudh District. <http://Census2011.co.in/415.boudh>.
- Census of India. <http://www.Census2011.co.in>.
- Census of Odisha. <http://Census2011.co.in/states.php>.
- Chandhasekaran, P. (1982). Attitudes of rural women of Tamil Nadu towards the formal education of women.
- Chaudhari, M.A.N.I.S.H.A. (2015). To Study the Parents Attitude towards Medium of Education in Gandhinagar District. *International Journal of Research in Humanities and Social Sciences*, 3(2), 38–40.
- Das, K.K. (1984). *Current problems in Indian education*. Cuttack: Scientific Book Depot.
- Deb, P., & Ghosh, G.S. (n.d.). *Socio-cultural and geo-problems in scheduled caste and Jalpaiguri dist.*
- Dinesh, N.A., & Chandrashekar, E. (2015). Parent's attitude and perception towards primary education in rural Karnataka. *ISOR Journal of Humanities and Social Science*, 20(12), 20–26.
- Dinesh, N.A., & Chandrasekhar, E. (2015). Parents attitude and perception towards primary education in rural Karnataka. [www.iosjournals.org/papers/version-4](http://www.iosjournals.org/papers/version-4).
- GoI, M.H.R.D. (2016). *National policy on education 2016. Report of the Committee for Evolution of the New Education Policy*. New Delhi: Ministry of Human Resource Development (MHRD).

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

- 
- Gupta, M. (2010). Study on the attitude of parents and teachers towards population education [Unpublished Ph.D. thesis, V.B.S. Purvanchal University].
- Hilal, H. (2016). Parents attitude toward education among Muslims. *The International Journal of Indian Psychology*, 3(65), 199–209.
- Joy, J., & Srihari, M. (2014). A case study on the school dropout scheduled tribal students of Wayanad District, Kerala. *Research Journal of Educational Sciences*.
- Kainuwa, A., & Yusuf, N.B.M. (2013). Cultural traditions and practices of the parents as barriers to girl-child education in Zamfara State Nigeria. *International Journal of Scientific and Research Publications*, 3(11), 1–8.
- Kaur, H. (1999). Problems of Primary Education as Perceived by Parents in relation to their Attitude towards Primary Education.
- Korth, R. (1981). Involvement with parents of behaviorally disordered adolescents. *Educating adolescents with behavior disorders*. Columbus: Charles E. Merrirr'PAblishing Company.
- Lakshmi, L.B., & Karimulla, S. (2007). Attitude of Rural Parents towards Girls Education. *Edutracks: A Monthly Scanner of Trends in Education*, 7(2), 31–32.
- Maharana, R., & Nayak, J. (2017). Educational status among the particularly vulnerable tribal groups of Odisha. <http://www.researchgate.net/publication/318960653>.
- Maji, S., & Sriniketan, B.D. (2016). Educational Status of Tribal Women in West Bengal. *International Journal of Allied Practice and Research Review*, 3(9), 6–10.
- Mete, Jayanta Kumar, Chowdhury, Arnab, Rumi, Nasrin, Biswas, Mousumi, Khatun, Najmatunnessa, Rakshit, Somdyuti, Datta, Rimmi, & Bose, Piyali. (2023). Attitude of Tribal Parents Towards the Higher Education of Girls in India. *Journal of Higher*

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

---

Education Theory and Practice, 23(4).

<https://www.researchgate.net/publication/369325493>.

Miller, S. (2007). Determinants of parental attitudes regarding girls' education in rural India. [Doctoral dissertation].

Mohanasundaram, K., & Kannan, R. (2001). Socio-economic Status and Attitude of Parents towards Women Education. *The Educational Review*, 44(6), 13–16.

Mor, K., & Sethia, S. (2015). Parent's Attitude towards Girls Education in Haryana. *American International Journal of Research in Humanities, Arts and Social Sciences*, pp. 2328–3696. ISSN (Online).

Nambissan, G. (2000). Identity, exclusion, and the education of tribal communities. In *The Gender Gap in Basic Education: NGOs as Change Agents* (pp. 175–224). New Delhi: Sage Publications.

Panda, S.C. (1983). An empirical study on education of tribal in Odisha. <http://books.google.co.in/books?id>.

Patnaik, B., Samal, R., & Panigrahi, A. (2013). Parent's attitude towards schooling and education of children. *Indian Journal of Health and Wellbeing*, 4(5), 1061.

Purohit, Biswamitra, & Patel, Iswar. (2022). Attitude of Tribal Parents Towards Education of Their Children in Relation to Literacy and Socio-economic Status. *International Journal of Creative Research Thoughts (IJCRT)*, 10(6), June 2022. ISSN: 2320-28.

Reshma, M. (2014). Parents Attitude towards Girl Child Education: A Sociological Study of Haryana. *International Multidisciplinary Research Journal*, 1(4), 1-4.

Rout, N. (2015). A contemporary study: the problems and issues of education of tribal children in Kandhamal district. <http://www.soegra.com/ijert.html>.

# Bengal Journal of Social Science and Development

Volume No. 3, Issue No. 4 (Aug, 2024) | ISSN: 2583-3413



An Online Quarterly Published Peer Reviewed Journal for Social Science Disciplines  
by N.S.D. Educational Welfare Trust

E-Journal URL: [www.bjssd-journal.com](http://www.bjssd-journal.com)

Page No.: 140 - 156

- 
- Sahoo, L.K. (2011). Socio-economics profile of tribal population in Mayurbhanj and Keonjhar District. [www.magazines.odisha.gov.in/may/engpdf](http://www.magazines.odisha.gov.in/may/engpdf).
- Sahu, K.K. (2014). Myths and realities of tribal education: a primary study in Similipal area of Odisha. *International Journal of Humanities and Social Science Invention*, 3(4), 01–06.
- Samal, R. (2012). Parents' Attitude towards Schooling and Education of Children. [Doctoral dissertation].
- Samal, R. (2012). Parents' Attitude towards Schooling and Education of Children. [www.shodhganga.inflibnet.ac.in](http://www.shodhganga.inflibnet.ac.in).
- Shah, H.P. (1976). A study of parent's attitude towards secondary education in Kaira district.
- Talt. (1972). A comparative study of attitude of literate and illiterate parents towards girls' education: A case study of district Khanewal.
- Thakker, D.G. (1994). A study of parent's attitude towards home Science education in Kaira district.
- Thallapally, N. (2013). Effect of the parental attitudes on the psychosocial characteristics of the urban rural and tribal children.
- Turnbull, A.P. (1983). Parent involvement with special education: Respecting individual preferences. *Education and Training of the Mentally Retarded*, pp. 4–9.
- UNESCO. (2000). Adult literacy benefits? New opportunities for research into sustainable development. *International Review of Education*, 62(6), 751–770.