The Role of Computers in Promoting Environmental Awareness Among Secondary School Students: A Case Study in Chirang District, Assam

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Abstract: *This study examines the role of computers in promoting environmental awareness in private and provincialized secondary schools within Chirang District, B. T. R. (Assam). It explores how digital tools are integrated into the educational system and assesses their effectiveness in enhancing environmental consciousness among students. The research adopts a qualitative methodology, using a structured questionnaire to gather data. Key findings indicate that while computer education is becoming more prevalent, disparities in infrastructure, teacher training, and access to technology hinder its effectiveness. This study highlights the need for improved digital literacy, better resource allocation, and increased institutional support to maximize the potential of computers in environmental education.*

Keywords: Computer - based learning, environmental education, digital awareness, technology in schools, Assam secondary education

1. Introduction

Awareness refers to the ability to perceive, feel, or be conscious of objects, events, emotions, thoughts, or sensory patterns. At this level of consciousness, it is easy for the observer to come from the sense data without necessarily implying to understand it. In other words, it can be stated as the quality of State where one is aware of something. The "Environmental Education Awareness" refers to the increasing the perception of people at all levels with regard to the relationship between the environment and the human beings and also to create and enhance the skills/Abilities for improving and giving protection to the environment. The primary objective of environmental education should be to raise awareness across all sections of society and encourage active participation in environmental conservation and preservation. Computer is being used in every walk of life in the society today. The term 'computer' has been derived from the Latin word 'compute' which means to calculate. Computer can be termed as a calculating device. The letters used to coin the word computer have some specific meaning: - C - Calculate, O - Operate, M - Memorize, P - Print, U - Update, T - Tabulate, E – Edit and R - Respond. It is an electronic device, which accepts data, performs operations on that in a sequence (decided by a program) and brings out the results. Computers are categorized based on size, including mainframes, mini - computers, and microcomputers.

The author should avoid unnecessary explanations that do not contribute to the research topic. it is important for the students to have maximum exposure to the operation of computers and make the maximum use of computers and the software programs available for the purpose of learning especially the difficult subjects like Mathematics; Science; English and other major subjects for which majority of our students claim to be lagging behind the students from the rest of the country. Therefore, it was thought worthwhile to undertake a study in the area of computer education laying more stress on the use of Computer and its role in creating environmental awareness and learning in schools of private and provincialized secondary schools particularly in the district Chirang B. T. R. (Assam), which will also enable us to draw inferences about

the status of such type of education in other parts of the state especially in the interior areas. This study investigates how computers contribute to environmental awareness among secondary school students in Chirang District, Assam, evaluating their accessibility, effectiveness, and limitations in school education.

1.1. Area of Study

The study is mainly confined within the schools in the district of Chirang. According to the KVK record, Chirang at a Glance 2016 – 2017 [26], Chirang district is situated in the side of north west, surrounding by Bhutan in North, Bongaigaon District to south a little part of Kokrajhar district, Kokrajhar area is in West side of Chirang district, Baksha district is to East side of Chirang district. The geographical region of the Chirang is 1089.94 sq. km. The area of district is situated between 26028 N to 26054 N longitudes 89042 E to 90006 E. Chirang district is one example of significant district in BTAD.

The area of present study will be private and provincialized Secondary Schools of District Chirang (BTR) Assam. It covers the area of 1169.9 sq. km. Its density is 244/sq. km. Its literacy rate is 64.71. It is surrounded by Bhutan country to North; Kokrajhar town to South; West Bengal to West and Baksha District to the East. Its inhabited people are Bodo; Rabha; Garo; Assamese Rajbanshi; Bengali; Santhali; Nepali; Muslim and others.

2. Literature Review

Morgil, İ., Seçil, A. R. D. A., Seçken, N., Yavuz, S., & OSKAY, Ö. Ö. (2004) conducted a study on the influence of computer - assisted education on environmental knowledge and environmental awareness. In this study, an environmental knowledge test of 35 questions and an environmental awareness scale of 13 questions were applied as a pre - test to 88 students. Following the pre - test, the students worked for 15 hours per week in an Internet class, in which they intensively applied computer - assisted methods for 2 weeks. It was determined that after the computer - assisted

instruction, students' environmental knowledge and awareness were increased.

Uzunboylu, H., Cavus, N., & Ercag, E. (2009) conducted a study on Using mobile learning to increase environmental awareness. The Data was collected using "usefulness of mobile learning systems" questionnaire from a sample consisting of 20 male and 21 female undergraduates enrolled in computer education and instructional technologies classes at the Near East University in North Cyprus. It is found that a greater proportion of females than males expressed positive attitudes and greater concern toward environmental concerns. Females approach environmental topics with more sensitivity than males. Males use mobile technologies such as SMS, MMS, electronic mail, and the GPRS more than females that brought environmental awareness in them. Given the increasing role of technology in education, this study highlights the significance of integrating computer - based learning to enhance environmental awareness among students. It provides insights into challenges faced in resource - limited schools and suggests strategies for improved implementation.

3. Need and Significance of Study

The present study is aimed at gathering information regarding the status and extent of the progress made in imparting computer education and the awareness of environment in schools of Private and Provincialized secondary schools in Chirang District (BTR) Assam. This study is also aimed at learning about the views and knowledge of the school authorities, teachers and students about the computer, its importance, need, etc. in imparting quality environmental awareness

Computer offers various scope towards providing environmental awareness to students. These are mentioned below.
a) **Educational Platforms:** Websites like Khan Academy, Coursera, or even specific environmental websites (e. g., National Geographic, WWF) offer courses, articles, and videos that explain complex environmental concepts in simple, digestible formats.
b) **Videos and Documentaries**: Platforms like YouTube or TED - Ed provide access to environmental documentaries and short videos. Visual media can have a powerful impact on students' understanding and emotional connection to environmental issues.
c) **Infographics and Animations**: Computers allow students to create or view infographics and animations that simplify complex environmental data and concepts, making them more engaging and easier to understand.
d) **Online Discussion Forums**: Platforms like Google Classroom or Edmodo allow students to collaborate, share ideas, and discuss environmental issues in a digital space. This enhances peer - to - peer learning and awareness - building.
e) **Global Projects and Initiatives**: Students can participate in international environmental initiatives or virtual classrooms where they engage with peers from around the world to discuss and act on global issues like climate change.

f) **Environmental Research Tools**: Computers enable students to conduct research using tools like Google Scholar, ResearchGate, and environmental research databases. They can explore primary research, case studies, and scientific reports on topics such as pollution, renewable energy, or endangered species.
g) **Data Visualization:** Students can use software (e. g., Excel, Tableau, or Google Sheets) to create charts, graphs, and visualizations from environmental data, helping them better understand trends like global temperature rise, deforestation rates, or air quality.

4. Objectives of the Study

The researcher has taken two objectives for study. These are mentioned below.
1) To know the general understanding of the students about the need of computer technology in imparting environmental education.
2) To know whether schools impart the environmental awareness through computers
3) To know the initiatives taken by the school authorities to provide environmental awareness through computer.

5. Methodology

Method of study: In the study Descriptive method will be used. It is concerned with studying 'what exists'. It interprets and explains the educational phenomena. It comes under qualitative studies or research.

Population: All the students of the private schools including Schools managed by private individuals, Semi - private Associations, Registered societies; Non - governmental organizations and Kendriya Vidyalayas that are permitted and recognized by the Board of Secondary education, of Assam (SEBA) and others which are affiliated to the Central Board of Secondary Education (CBSE) following the syllabuses of the respective boards for computer education within the territory of the District Chirang B. T. R. (Assam) during the year 2024 - 2025 are taken as target population.

Sample: In the present study the researcher selected the sample from the population by the technique of stratified random sampling. Stratified random sampling is a probabilistic sampling option. The first step in stratified random sampling is to spill the population into strata i. e. sections or segments. The strata chosen to divide a Population into important categories relevant to the research interest. The sample consisted of 60 students, selected from 6 schools using stratified random sampling, ensuring representation across different school types and geographic locations.

Procedure of data collection:
For the present study the data was collected from 60 students from 6 schools located in Bijni subdivision area. The investigator visited all the schools of the study area personally and has collected some data from the school authority. Then the investigator distributed the questionnaire to the selected students which is presented in Table - 1

Table: 1

It shows the total No. of Schools to be taken for collecting data

Sl. No.	Total No.
Private school	03
Provincialized school	03
Total	**06**

In the table, there are two types of schools i. e., Private and provincialized. The researcher decided to take 6 schools for the sample. As a result, from the stratum 3 schools from private and 3 schools from provincialized are taken.
While selecting number of students simple random sampling technique was used. The investigator selected 10 students from each school containing 5 girls and 5 boys students.

Tools of data collection
A questionnaire is a research instrument consisting of a series of questions designed to collect data from respondents. It is widely used in surveys, academic research, market studies, and evaluations to gather information about individuals' thoughts, preferences, behaviours, or experiences. Questionnaires are an essential tool in quantitative research, helping researchers gather standardized data from large groups of people.

Structured Format: Questionnaires typically have a structured format, ensuring that each respondent answers the same set of questions.

Norms have been prepared for the Questionnaire which are as follows:
The norms for the questionnaire follow as 1 mark for the correct answers and 0 mark for the wrong questions. There are 15 questions and consists of 30 marks.

6. Analysis And Interpretation of Data

Analysis of data and its interpretation is an important phase in research studies. Analysis of the data means studying and tabulating the materials in order to determine the inherent facts. The data is studied from as many angles as possible to explore the new facts and to re - interpret already known existing facts. This is usually done with a purpose of determining the current situation and making suggestions for the improvement of the present decadent situation (if any) and thus to make the situation better for the bright future of present and future generations of human beings.

6.1 Analysis of students' questionnaire

To elicit factual information about the students' actual experience with the use of computer for environmental awareness a questionnaire relevant to the study (Comprising of fifteen (15) questions) was prepared and was handed out to a total of 60 students of Class IX which included both boys and girls.

6.1.1. General understanding whether Computers can help spread Environmental Awareness.
Analysis: The students should have love for environment. The computer also can be of help to spread the message about environmental protection and sustainability.

Interpretation: The following table shows the level of Environmental awareness of both the private and provincialized school students. It shows that the students have better level of general understanding that computer has the capacity to spread environmental awareness to students.

Sl. No.	Questions	Agree	Disagree
1.	Do you think computers can help spread environmental awareness through social media platforms?	54	06
2.	Can online educationally tools and resources increase knowledge about environmental issues?	52	8
3.	Do you believe that digital campaigns can effectively raise awareness about climate change?	36	24
4.	Can computers help environmental organizations reach a larger audience for their conservation efforts?	38	22
5.	Do you think virtual events or webinars can be a powerful tool in educating people about sustainability?	33	27

6.1.2. Whether a school should provide Computer classes focused on the environment
Analysis: In this different aspect of a school related to computer and environment are discussed. School is place where students should be taught to keep the surrounding clean. Various classes, videos, and lectures can be conducted through computer so that students can see and know about the environmental issues in different parts of the world.

Interpretation: The responses with regard to whether school should provide computer related environmental classes are as follows.13% of private boys' student and 10% of govt. boys felt that there should be classes on environment through computers.12% of private girls and 9% of govt. girls felt the need of computer classes related to environment.


Govt. Boys ■ Govt. Girls ■ Private Boys ■ Private Girls
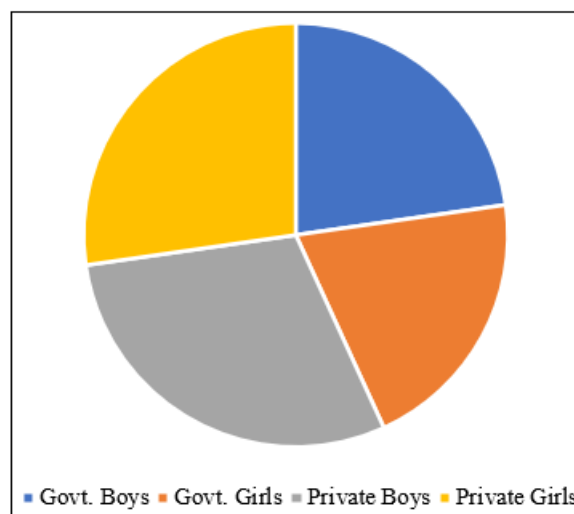
KEY: SD: Strongly Disagree **D:** Disagree **NS:** Not sure **A:** Agree **SA**: Strongly Agree

6.1.3. Whether school authorities encourage the use of computer in creating environmental awareness:

Analysis: The teachers, principals, and management should work together to make the computer related class on environment. Concerted effort should be there to make it happen.

Interpretation: From the responses it is found out that 14% of private girls and 11% of govt. girls find the school authorities interested in computer related programme on environment.12% of private boys and 10% of govt. girls find that the school authorities are supportive towards environmental related computer programme.
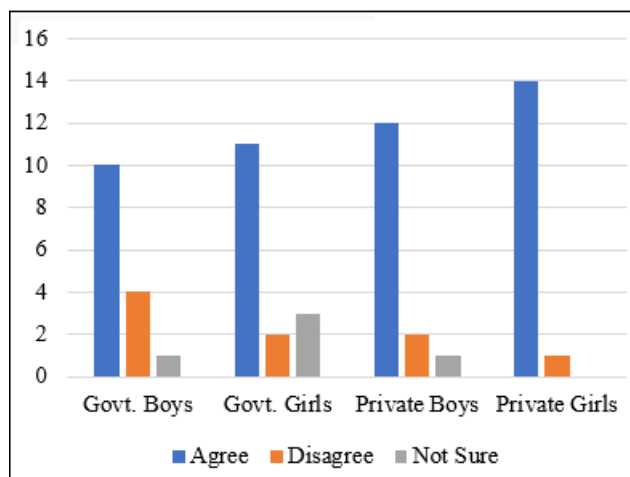
7. Recommendation

Through the study it is known that computer has not much been used to spread environmental awareness to the students. Therefore, some good steps could be taken and these are mentioned below.

7.1. Integrate the curriculum with environmental education

The schools should take initiative to promote environmental awareness through various computer - based lessons, interactive e - learning modules, and educational software. These classes will help the students to know more about the environmental issues like deforestation, climate change, pollution through simulations, presentations and videos.

7.2. Plan Webinars and Virtual Workshops

The schools should organize online webinars and workshops for students. The environmental experts and activists can share knowledge about various ecological issues. These virtual sessions could be streamed on school computers, where students could interact with experts, ask questions, and explore real - time solutions. This approach could encourage students to take a proactive role in protecting the environment.

7.3. Create Awareness Programs and Digital Campaigns

Urge students to use computers to develop projects or digital campaigns that address regional environmental concerns. These efforts, which emphasize the value of environmental

protection, can take the shape of infographics, brief films, or social media posts. Schools might offer venues for showcasing these creations, encouraging students' creativity and sense of responsibility.

7.4. Include Environmental Simulations and Virtual Field Trips

Take students on virtual field visits to animal sanctuaries, national parks, and environmental conservation locations—particularly those in Assam—by using computer technology. Ecosystems and wildlife could be explored through 3D simulations and virtual reality (VR). Students would be able to observe environmental conservation activities in action without ever leaving the classroom thanks to this interactive, hands - on experience.

7.5. Encourage environmentally responsible behaviour via school apps and websites

Schools can create applications or websites that give instructors and students access to information about sustainable practices, such recycling, cutting back on plastic use, and using less water and energy. The app might include environmental challenges, advice, and incentives for kids who take an active part in school - wide eco - friendly projects. Through these platforms, students can also share their eco - friendly ideas and projects, creating a community of people who care about the environment.

8. Conclusion

This study underscores the potential of computers in fostering environmental awareness among students. However, infrastructural constraints, teacher training, and limited access to technology remain major barriers. Future initiatives should focus on integrating digital learning platforms, improving teacher proficiency, and ensuring equitable access to technology to maximize its educational benefits.

References

[1] Lokanadha, G., & Reddy, D. (2022). Environmental awareness and attitude among secondary school students. *International Journal of Creative Research Thoughts*, 10 (2), 47. Dravidian University, Kuppam, Andhra Pradesh.

[2] Basumatary, U. R. (2020). Advances in mathematics. *Scientific Journal*, 9 (10), 8079.

[3] Das, I. (2003). *Computer education in the secondary schools of Assam* (Doctoral dissertation). Department of Education, Guwahati University, Guwahati, India.

[4] Santos, B., Romão, T., Dias, A. E., & Centieiro, P. (2013). E Vision: A mobile game to improve environmental awareness. In *Advances in Computer Entertainment: 10th International Conference, ACE 2013* (pp.380 - 382). Springer International Publishing.

[5] Swargiary, A., Roy, M. K., & Daimari, M. (2019). Survey and documentation of ethnobotanicals used in the traditional medicines system of tribal communities of Chirang district of Assam against helminthiasis.

Biomedical and Pharmacology Journal, 12 (4), 1924 - 1926.

[6] Takala, M. (1991). Environmental awareness and human activity. *International Journal of Psychology*, 26 (5), 7.

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