Impact of Environmental Education Technology in Secondary Educational Institutions: A Study in Chittagong City Area

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ABSTRACT

An exploitative field study to determine the environmental education technology among teachers and learners in secondary levels among the government, autonomous and private educational institutions in Chittagong urban area of Bangladesh was conducted in 40 schools. The study details the standards established, the results measured, and the successes achieved since the new direction passages mentioning the current status of environmental education technology in the mentioned schools to look as an overview study in regional issue with pragmatic reasons. Uniqueness of environmental education’s technology was identified based on relevant tools to enhance teachers and learners on their teaching-learning with exploring and understanding the world around them through literature review, observations and interviews with teachers and relevant bodies. The 40% schools were out of frequent technology which is maximum percentage while 2.5% schools were used laptop-minimally percentages. The 51% of respondents showed interest and attention in class when teachers incorporated environmental education technology into their lessons. Overall, it was concluded that environmental education in the urban schools needs some enhancement to the training curricula with technological arena. The study focused the concept and overview about the environmental education and gave steps required for augmentation with techniques and tactics of these effective institutions. Finally, we focus future research trajectories of the co-managed approaches and recommendations for how to further develop the demanding environmental education technology among biologists, engineers and other relevant professionals.

Keywords: Environmental Education, Technology, Learners and Professionals.

1. INTRODUCTION

Education is the modern technological arena for present and upcoming generations which ties within propinquity among teachers, learners and motivated people. They are accustomed to incorporate environmental concerns. Consciousness of environmental concerns has grown tremendously over the last decade as modern science and a more
globally cognizant population continues to enlighten to the connection between a healthy planet and living status of people ubiquitously. For decades that connection has questionably been undermined by population growth, urbanization and land area loss, creating a potential divide between people and the natural environment. Environmental education (EE) has the potential to make easy experiences that escort to this connection. Exposure to nature, either through structured EE programs or unstructured play, has many benefits. Yet despite these benefits, many barriers exist for integrating EE into formal and informal educational settings remain. Research has recently suggested that a trend is emerging in which barriers are more prevalent and therefore fewer children experience nature directly [1, 2]. With an increasing need for after school care, there is an unprecedented opportunity for educators in these settings to integrate EE and reach vast numbers of children annually. With a greater portion of the population living in urban environments, experiences in natural areas are limited due to the lack of green and natural spaces in many cities. Although substantial challenges can arise to expose urban youth to the natural environment, many innovative and plausible methods have been and continue to be developed as a means to overcome these barriers. All models of programmed instruction kept as a goal, the motivation, pacing, mastery and interactivity of individual learning [3]. Any technology for education is a device to enhance the learning opportunity. Whether threw games that model what is being taught; tools for organizing; recording; and visualizing information; or the creation of experiences, “micro-worlds” for example, allow the engagement in play and exploration of realms otherwise not accessible, technologies can be invaluable in a wide array of settings and forms [4]. Consider the technologies we have available starting from the printed book to the multiple copies in color; pictures to overheads; chalkboard to electronic blackboards; slates to computer notepads; stories to virtual realities. Videos, computers, educational TV (or ITV), CD-ROMS, laser discs, communications satellites and a host of other tools are all considered part of educational technology[5;6]. The integration of environmental education technology implies pedagogical development, technological improvement and environmental awareness on the priority of rules and regulations, standards and implementation patterns which is shown in the figure 1. Environmental education, whether in formal, non-formal, or informal settings must also adapt to technological change in order to maintain societal relevance. Modern technology uses immensely complicated machines requiring little of what is traditionally considered hands-on or even minds-on engagement [7]. The challenge must be to identify the capacity of the learner to use the technology to expand rather than restrict their experiences with the real world interlinked with government, autonomous and private educational institutions in Chittagong Urban Areas in Bangladesh.

Figure 1: Integration of Environmental Education Technology
ENVIRONMENTAL EDUCATION TECHNOLOGY

Incorporating technology into our educational curricula provides students with additional tools to enhance their learning. Environmental Education Technology is the multidimensional phases and models. Out of them, the TPCK (Technological Pedagogical Content Knowledge) model provides a clear look at the need to ensure that the technology, content, and teaching practice are not separated, but rather considered simultaneously when planning the integration of a new technology which is shown in the figure 3 [8]. Research shows that students who are exposed to EE perform at higher levels on standardized tests as well as in regular classroom activities in all subjects [9; 10; 11]. An additional benefit of EE is increased student engagement, enthusiasm, interest, and knowledge [12; 13]. According to [14] found that in schools that integrated EE, students gained knowledge more effectively, retained it longer, showed increased critical thinking and problem solving skills and became enthusiastic, self-motivated learners. Another outcome of EE is its positive effect on environmental stewardship. Research has consistently shown that positive experiences in nature as a child help foster a connection to the natural world and lead to environmental stewardship as adults [15; 16; 17] study revealed that direct experience with nature as a child through lessons passed on by a prominent adult, inspiring teachers, and memorable field trips can have a significant influence on an individual’s environmental attitudes and behaviors as well which is showed in the figure 2.

Figure 2: Impact of Environmental Education Technology

Figure 3: Combination of Technological Pedagogical Content Knowledge (TPACK) [8].
METHODS OF THE STUDY

In this study mainly social science and historical methodology has been pursued. Moreover systematically aspects of natural environment with distinguished features of its makeup, curriculum shall be analyzed and reviewed. In respect of resource materials of research in this paper mainly measured the references in the personnel and demo-official proceedings, published reports, newspapers, magazine, bulletin, souvenir, journals and various relevant institutions’ reports to be related in environmental education technology. Secondly, some of the helpful literatures related to environmental education technology in Chittagong Metropolitan areas written by well-known researchers have been taken to compare, cross and justify against the objectives. The above mentioned source-materials have been collected in governmental, non-governmental and different libraries etc in Bangladesh. We have also utilized modern technologies like internet, websites, email, mobile & telephone, Skype, conferencing and relevant network etc. to collect facts and information about our research field which was help us to reach a further more accurate decisions and opinions. Feedback meeting carried out in order to share the research findings with the respondents and staffs to get their feedback suggestions and comments of environmental education technology during the organized interview through questionnaires.

RESULTS AND DISCUSSION

Assessment of Environmental Education in the Classroom

As a result, Educational Concepts in the Classroom for Teachers introduces six principles for integrating environmental education into the classroom setting in the Table 1.

Principles for Integrating Environmental Concepts in the Classroom

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<tr>
<th>Sl. no.</th>
<th>Principles for Integrating Environmental Concepts</th>
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<tbody>
<tr>
<td>1.</td>
<td>Direct experience is the basis of learning</td>
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<tr>
<td>2.</td>
<td>Responsible action is integral to, and a consequence of, environmental education</td>
</tr>
<tr>
<td>3.</td>
<td>Life on Earth depends on, and is part of, complex systems</td>
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<td>4.</td>
<td>Human decisions and actions have environmental consequences</td>
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<tr>
<td>5.</td>
<td>Environmental awareness enables students to develop an aesthetic appreciation of the environment.</td>
</tr>
<tr>
<td>6.</td>
<td>The study of the environment enables students to develop an environmental ethic.</td>
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</tbody>
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Table 1: The six concepts that the Environmental Concepts in the Classroom documents seen as the basis of environmental education.

The suggested guidelines are followed with modern technology accordingly (i) Integration of traditional subjects or multidisciplinary approaches, (ii) Presentation of a range of perspectives, (iii) Currency, (iv) Multicultural perspectives, (v) The place of action specially national park, (vi) Both local and global perspectives, (vii) Hopefulness, (viii) Humility where the 44% respondents are shown for strongly agree for the use of EE technology. On the other hand, agree 38%, neutral 13%, disagree 4% and strongly disagree only 1% respondents of the use of environmental education technology in the studied classrooms which is shown in the figure 4.
The use of EE technology in classroom has a reflective impact on students' motivation and relevant behavior.

Integrated Environmental Education Technology in Teachers’ Lesson Plans

The means for this data was also monthly. Ideally, as has been suggested throughout the literature review, environmental education technology should be integrated into the classroom daily. However, it is heartening to note that the next major proportion of the respondents said they integrated environmental education technology "weekly", which is significantly more frequent than "Monthly". The general consensus among all the interview contributors was that environmental education technology should be interdisciplinary, recurrent, pertinent and the interview participants undergone they were ensuing at this where 51% respondents are shown as strongly agree for augmenting interest and attention in class due to integrate Environmental Education Technology. The far above the ground levels of interest in teaching about the natural and technological world among instructors and parents had a strong root in the culture and origin of the community in Chittagong Metropolitan Areas with a significant portion of the school society, and abundance of hilly areas and natural beauty indicating amelioration; this had an obvious force on the participants’ attitude toward nature and is a unique finding in this study in terms of instructors’ and parental motivation for Environmental Education Technology while 40% used none of technology at different educational institutions. The integration of environmental education technology is more essential in teachers’ lesson plans tremendously which was shown in the figure 5 accordingly.
The surveyed schools were indicated with different types of technologies as the use of environmental education technology which is augmented the update environmental education technology in urban educational institutions in Chittagong City Areas. The 40% schools were out of frequent technology which is maximum percentage while 2.5% schools were used laptop- minimally percentages. Others were 25% of student per computer, 15% wireless network, 12.5% high speed internet and 5% of video streaming respectively in the studied schools with these types of technologies which were shown in the figure 6 accordingly.

**CONCLUSION**

The technology of environmental education has obtained momentum but has not been able to make the quantum leap towards preventing, stopping and reversing environmental degradation although some of the reasons focused secondary levels at the educational
institutions in Chittagong City Areas (CCA). This study showed that although impact of environmental education is included in CCA curricula and classrooms, it is not necessarily taught frequently or effectively except modern technology viz. computer, laptop and internet including field trip and video streaming. For environmental topics at secondary level schools are only included in the science and social studies mentioning slightly others relevant courses. Teachers who are inexperienced in environmental education lack guidance and could most benefit from the existing policy with new technological arena. Teachers identified a number of obstacles to environmental education in CCA including insufficient teacher training, scarce teaching resources, inadequate funding and lack of time. Based on the information we have gathered, we would like to put forth some suggestions for the improvement of environmental education technology in CCA schools. We are paying attention future research trajectories of the co-managed approaches and recommendations to the government and existing institutions for how to further develop the demanding environmental education technology among biologists, engineers and other relevant professionals which is affected to the society positively.

REFERENCES


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