STUDY THE INFLUENCE OF ICT ON STUDENTS' PERFORMANCE IN ENVIRONMENTAL EDUCATION

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Abstract

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. Environmental Education is adopted as a core subject in primary and secondary schools of our country. It is a course designed to inculcate in the learners right attitudes, values, knowledge and skills for effective citizenry and enable them understand the ways to manage their environmental resources for maximum utilization. With the use of ICT in environmental education classes, the students engage in self-directed learning experiences and activities, that encourages self-expression, co-operative learning and interaction not only with immediate environment but with outside world as well, the students are grounded in environmental education contents.

Keywords- Achievement, Environmental education, Information and communication technology, Students, Traditional

Introduction

In this 21st century, many factors bringing to bear on the adoption of ICT in education and contemporary trend suggest large scale changes in the way education is planned and delivered as a consequence of the opportunities and availability of ICT. The emergence of Information and Communication Technology (ICT) has revolutionized the existence and activities of contemporary man especially in the milieu of globalization (Evey, Opera, Akiang, Udama Asinde, 2010). Attempts have been made to establish relationship between information communication technology and human behaviour. Ibe-Bassey (2000) and Inyang-Abia (2004) noted that media mediate in a continuum between stimulus response learning and cognitive learning to concretize ideas, concepts and facilitate learning. This reveals that ICT is capable of facilitating the collection, preparation, presentation, storage, retrieval, conveyance and dissemination of information.

"ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries" (Abe & Adu, 2007). It has been touted as potentially powerful enabling tools for educational change and reform. "When used appropriately, different ICTs are said to help expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality by, among others, helping make teaching and learning into an engaging, active process connected to real life"

Environmental Education is adopted as a core subject in primary and secondary schools of our country. It is a course designed to inculcate in the learners right attitudes, values, knowledge and skills for effective citizenry and enable them understand the ways to manage their environmental resources for maximum utilization. This is why Chikelu, (2007) defined

environmental education as an interdisciplinary study of man and his interaction with his environment and inculcation of right attitudes, values, knowledge and skills for developing effective citizens who contribute positively to the development of his environment. It has been observed that there is sharp fall in interest and performance of students and pupils in environmental education owing to an unbridled use of conventional lecture and storytelling method in teaching and learning of environmental education (Okafor, 2006). This has resulted in high rate of environmental degradation, corruption in the use of natural wealth and poor management of environmental resources. With the use of ICT in environmental education classes, the role of the teacher changes from that of —gatekeeper‖ of knowledge to that of —facilitator‖ and —manager‖ of the learning environment. The students will become self-directed learners rather than a passive learner. Through the guidance of the teacher, each student/pupil sets priorities and achievable goals and assumes responsibility for reaching the goals. As ICT enables the students engage in self-directed learning experiences and activities, that encourages self-expression, co-operative learning and interaction not only with immediate environment but with outside world as well, the students are grounded in environmental education contents.

Review of related literature

Brown and Liedholm (2002) surveyed students in a matched pair of online and face-to-face contents of environmental education taught by the same teacher. They reported that exam scores, after taking into account differences in student characteristics, were approximately 6% higher for the on-campus format than for the online format. They attribute the relatively better performance in the on-campus classes to the benefit of in-person teacher-student interactions, and attribute the relatively poorer performance of the students in the online class to the lack of self-discipline necessary for successful independent learning in the online environment.

Leuven *et al.* (2004) concluded that there is no evidence for a relationship between increased educational use of ICT and students' performance. In fact, they find a consistently negative and marginally significant relationship between ICT use and some student achievement measures.

Sosin *et al.* (2004) constructed a database of 67 sections enrolling 3,986 students, taught by 30 instructors in 15 institutions in the United States of America during the spring and autumn semesters of 2002. They found significant, but low, positive impact on student performance due to ICT use. But they showed that some ICT seems to be positively correlated to performance while others are not.

Fuchs and Woessman (2004) used international data from the Programme for International Student Assessment (PISA). They showed that while the bivariate correlation between the availability of ICT and students' performance is strongly and significantly positive, the correlation becomes small and insignificant when other student environment characteristics are taken into consideration.

Udoh (2006) acknowledged that Computer Assisted Instruction (CAI) unites all the capabilities of ICT innovations by its multi media approach to presenting Social Studies instruction stimuli to learners in various forms with full-colour impact at the same time.

McLain and DiStefano (1995) advised teachers on using internet to do some researches before students are given a task on internet to make sure that the topics chosen is available and is suitable for students. The teachers should have a variety of sites they want their students to explore and should have thoroughly explored the sites themselves. This makes the teachers to be aware of sites that are useful to Social Studies teaching and learning to avoid entangling the students with tasks that do not help in the achievement.

Papert and Turkle (1984) considered that students constructed reality from experience and prior knowledge. "The student interacts with the environment and, to cope with this environment, develops a conceptual framework to explain the interaction".

Dede (2009) found that earlier propositions even as technologies evolve, give rise to the set of constructs upon which the ICT capability is based.In particular, the overarching element applying social and ethical protocols and practices when using ICT addresses the personal, social and cultural contexts.

Objective

Does ICT have any significance on the academic achievement of students in Environmental education?

Hypothesis

There is no significant difference between the performance of the students who were taught Environmental education with ICT and those taught with textbooks only.

Methodology

The present research attempts to study the influence of ICT on the achievement of Environmental education. Causal comparative and co relational survey method of descriptive research have been used to conduct the study. The sample for the present study comprises of 200 students of class VII in Allahabad city. The researcher has prepared the achievement test for environment studies. The tool was administered on two groups of students, one group which was taught by traditional method and the other group were taught the content with the help of ICT. The basis of items prepared for the achievement tests were the contents present in class VII syllabus of environmental studies.

Analysis and Interpretation of Data

It was hypothesized that there is no significant difference between the performance of the students who were taught Environmental education with ICT and those taught with textbooks only. Results have been shown in the table .I

Table 1: T-test analysis of the performance of the students taught Environmental education with ICT and those taught with textbooks only.

Students	Mean scores	SD	df	A	t-cal	t-critical	Decision
Students taught with ICT- 12	32	4.10	22	0.05	6.65	2.074	There is significant difference
Students taught with textbooks only -12	23	2.28					

The results in table.1 show that the calculated -t at 0.05 level of significance with 22 degree of freedom is 6.65. The value is greater than t-critical which has the value of 2.074. The null hypothesis is rejected. Therefore, the performance of the students who were taught environmental education with ICT differs significantly from those taught with textbooks alone. Thus it can be said that use of ICT for teaching environmental education influences the performance of the students positively.

Conclusion

ICT seems to have a profound impact on the process of learning of environmental education by offering new possibilities for learners and teachers. These possibilities can have an impact on student's performance and achievement. Every child is unique and by collaborating ICT for teaching environmental education, student get a chance of acquiring the giving knowledge in

many different aspects thus providing a broader field for understanding any topic of environmental education. ICT has significant impact on student's learning processes. ICT tools stimulate students thinking and help them in preparing assignments and sequencing classroom activities. Therefore, students plan their lessons more efficiently. ICT also help students to work in teams and share ideas related to the curriculum. It plays a central role in fostering students' communication and increasing collaboration between educators. Considering the findings of the study, it was concluded that information and communication technology have significant influence on the student's academic achievement and their access to information in environmental education.

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