Unsustainable to Sustainable Development: Paradigm and Attitude Shift of Environmental Education in B.Ed. Students

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Abstract: The present study examined the effectiveness of multimedia(ICT) on the achievement of B.Ed students in environmental science .For the purpose .the sample of 400 B.Ed students was drawn from B.Ed colleges of Ghaziabad district.The students were divided into two groups .200 were in experimental group while 200 in control group. Pre-test was conducted for both the groups.The control group students were taught through conventional method of teaching.The experimental group students were taught through multimedia approach.The scientifia approach especially in the teaching-learning process can be applied through multimedia approach such as graphics, sound, animation, text and images prepared in CDs, video-conferences which are taken as a treatment of multimedia to the experimental group. After completion of the multimedia approach,the achievement test was administed as post test to the students of experimental group.Significant moderate positive relationship between learning achievement and attitude was found.The B.Ed.students of the experimental group achieved more than B.Ed students of the control group in environmental group .This is due to the favourable impact of the multimedia approach in the learning of the B.Ed students .The study demonstrated the effectiveness of learning environmental science.

Keyords: Sustainable Development, Paradigm Shift,Environmental Education,B.Ed Students

1. INTRODUCTION

Education is the means for any desired modification in the behavior of an individual. No doubt, school education or formal education plays an important role in behavior modification but informal education also plays an important role for the same.

Today man is living in the social, economic, political and value crisis. Added to this, in recent decades the environmental crisis has become another important factor, which has made everyone in the world to think its gravity. This is due to increasing population, urbanization, shrinking of agricultural land and vanishing of forests. All these leads to heavy localized air and water pollution coupled with the hole of ozone layer. To combat environmental degradation many initiatives have been taken up at international, national, state and institutional level by government and voluntary organizations. Among those, compulsory environmental education system as directed by Supreme

Court is the most appropriate strategy to create awareness, attitude, understanding and action towards environmental protection.

Emergence of environmental education as a compulsory component at school level is welcome step . India, a developing country can restore environmental and natural processes by proper awareness by proper awareness on such issues among its citizens. It is a new field and not much canvassing is being done by the public media. For the role of teacher and his/her methodology of teaching is crucial. Teacher's quantum of knowledge and understanding of environment is directly related with the objectives and problems of environmental education. Since the need of hour is environmentally – oriented citizens, the teachers being the national builders have the responsibility to produce such conscious citizens.

If we want to secure the future of our environment,we have to create awareness about the environment and an attitude for caring and sharing of natural resources among children who are the future citizen of our nation as rightly said by Pt.Jawahar Lal Nehru, the first PM of India that future of india is shaped in the classrooms where students are the foundations and teachers are the pillars of development.

Paradigm shift of environment education : Unsustainable to sustainable (table1)

Current Emphasis	Sustainability Emphasis
Pollution Clean-up	Pollution Prevention (Cleaner production)
Waste disposal (Bury or Burn)	Waste Prevention and Reduction
Protecting Species	Protecting where species live(habitat protection)
Environmental degradation	Environmental restoration
Increased Resource use	Less wasteful (more efficient) resource use
Population Growth	Population stabilization by decreasing Birth Rates
Depleting and degrading natural capital	Protecting natural capital and living of the biological interest it provides

Some shifts involved in the environmental or sustainability Revolution

Objectives of the study

1. To find out the status of learning achievement in Environmental Education among B.Ed. teacher trainees.
2. To study the effectiveness of Multimedia elements such as audio text, images,sounds, animation, graphics and video materials on learning achievement.
3. To examine the sustainable environmental attitude of B.Ed teacher trainees.

Hypotheses of the study

1. There is no significant difference between the learning achievement of B.Ed teacher trainees in environmental education taught through conventional method and multimedia approach(ICT).
2. There is no significant difference in the scientific attitude of control and experimental groups.
3. There is no relationship between learning achievement and scientific attitude of the B.Ed teacher trainees.

Sample

The sample of this study comprised of 400 students studying in B.Ed from 4 B.Ed colleges of Ghaziabad. The investigator selected 4 B.Ed colleges and each college have 100 B.Ed Students. The investigator divided the control group and experimental group.

Tools

The topics included for teaching were Biodiversity, Natural resources, Water Pollution, Environmental Acts, Solid Waste Management.

The investigator developed and validated an environmental attitude inventory which was tried out on students.

Experimental Procedure

The control group was taught through conventional method of teaching. The experimental group was taught through multimedia (ICT) approach in the topics Biodiversity, Natural resources, Water Pollution, Environmental Acts, Solid Waste Management. These topics were taught to the experimental group for duration of five weeks.

Post –testing

After completion of content matter by conventional and multi-media approach, achievement test and tools of environmental attitude were administered as post –test to Teacher-trainees of experimental group and control group.

Statistical Techniques

Mean,Standard deviation t value and r value were used.

2. RESULTS

Pre-test Analysis

The investigator constructed an achievement test.The test consisted of the topics Biodiversity,Natural resources,Water Pollution,Environmental Acts,Solid Waste Management.

Administration of this test to the experimental group and control group helped the investigator to study the initial level of achievement of the teacher trainees. The mean and standard deviation for the control group and experimental group in the pre-test is shown in Table2

Showing the pre-test score analysis of learning achievement (table2)

S.No	Group	N	M	SD	t -value
1.	Control Group	200	26.6	7.4	
2.	Experimental Group	200	26.9	8.5	

The mean value of the control group and experimental group are 26.6 and 26.9,repectively.It indicates that the performance of the B.Ed. teacher trainees in the two groups during the pre-test was almost the same.

Pre-test Analysis of Environmental Science Attitude

Showing the pre-test analysis of environmental science attitude(table3)

S.No	Group	N	M	SD	t -value
1.	Control Group	200	210	13.35	
2.	Experimental Group	200	211.5	18.32	.61 (Not Significant)

The above table indicates that the performance of the B.Ed students in the two groups on the pre-test is almost same on the measure of environmental science attitude.

Post-Test Analysis

After examining the results of the pre-test ,investigator presented the teaching by using multimedia approach to the experimental group to improve learning achivements of the B.Ed. students.

The teaching based on the multimedia approach to the experimental group was followed by post-test.The mean, standard deviation and t value for the control and experimental groups on the post-test are shown in table.

Showing the post-test analysis of learning achievement (table4)

S.No	Group	N	M	SD	t -value
1.	Control Group	200	46.45	12.34	
2.	Experimental Group	200	78.34	24.13	14.34 (Significant)

It is clear from the above table that the mean of the experimental group is significantly higher than the mean of the control group.i.e the experimental group scored higher than the control group.

Post-test Analysis of Environmental Science Attitude

Showing the post-test analysis of Environmental Science Attitude (table5)

S. No	Group	N	M	SD	t -value
1.	Control Group	200	215.12	20.2	
2.	Experimental Group	200	267.12	24.13	7.7 (Significant)

It is clear from the table that the mean of the experimental group is significantly higher than that the mean of the control group .Therefore, it is concluded that the multimedia approach has made a positive impact on the environmental science attitude among the experimental group.

3. EDUCATIONAL IMPLICATIONS

From studies conducted in recent years, it is evident that information and communication technologies (ICT) can help to broaden access to education and improve learning outcomes. Research has also shown, however, that success in the use of ICT in education depends largely on teachers and their level of skill in integrating ICT into the teaching process and in utilizing ICT to provide learner-centred, interactive education. Therefore, training teachers to be able to use ICT and to integrate ICT into teaching is crucial for achieving improved educational outcomes with ICT.

In recent years, various programmes have been implemented in the Asia-Pacif ic region that seek to raise the capacity of teachers to utilize ICT effectively in teaching or that seek to utilize ICT tools to improve teacher education, or both. Many of these programmes are innovative in that they have pioneered this type of training in their country or they have introduced new techniques and training procedures.

Since the trainee teachers needed to become qualif ied to teach computer studies in schools, the curriculum development process included a concerted effort to match the curriculum to the schools' computer studies syllabus. However, at the time the curriculum was being developed there was a move to revamp the old computer studies syllabus for Grades 9 to 12. Because of the uncertainty of the school syllabus, it was therefore diff icult to develop the curriculum.

Consequently, it was agreed that the curriculum would be based on the existing syllabus and the relevant modules would be altered in future to match the revised school syllabus.

REFERENCES

[1] Institute for the Promotion of Teaching Science and Technology. 2002, Technology Curriculum Standards. Bangkok: IPST Printing Unit.

[2] Klainin et al. 2007, Quality of Education in Asian Countries: The results from PISA 2000, 2003. Bangkok: Seven Printing Group.

[3] Klainin and Soydhurum. 2004, Science Education in Thailand: The results from SISS to TIMSS. Bangkok: IPST Printing Unit.

[4] Kozma, R.B. (Ed.) 2003, Technology, innovation and educational change: a global perspective. Eugene: ISTE.115 ICT in Teacher Education: Case Studies from the Asia-Pacific Region

[5] Ministry of Education. 2007, MoE Announcement: ICT Policies and Standards. Bangkok: Off ice of MOE Secretary General. Off ice of Basic Education Commission. 2007, Report on Students' Achievement: Grades 6 & 9 - 2006. Bangkok: Off ice of Basic Education Commission.

[6] Off ice of the Education Council (OEC). 2006, Education Reform Roadmap 2005-2008. Bangkok: Prikwan Graphic Press.

[7] Pelgrum, W. J. and Anderson, R. E. 1999, ICT and the emerging paradigm for life long learning: A worldwide educational assessment of infrastructure, goals and practices. Amsterdam: IEA - University of Twente OCTO.