



APPLICATION OF EDUCATIONAL TECHNOLOGY IN SECONDARY SCHOOLS OF HOOGHLY DISTRICT IN WEST BENGAL

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ABSTRACT

Educational technology is a science of techniques and methods by which educational goals can be realised. Educational technology has two aspects i.e., hardware and software. Hardware technology is based on the principles of engineering and software technology is based on the principles of social sciences. In our educational system, there is a wide scope for educational technology i.e., to educate the learners with the help of a large variety of teaching-learning aids. Teaching-learning aids are the basic components of communication with multisensory approach which ensures stimulus variation during teaching-learning process, heighten motivation of learning, encourage active participation of learners, widen the range of experiences with an appeal to learners of various abilities. This investigation has been designed to study the use of various educational technologies in some secondary schools of the Hooghly District of West Bengal and their impact on the academic attainment of the learners. The findings and observations are analysed and discussed.

Key Words : Educational technology, teaching-learning process, teaching aids, academic attainments.

Introduction

Educational technology (ET) could be defined in simple terms as the efficient organisation of any learning system, adapting or adopting methods, processes, and products to serve identified educational goals. This would involve: Systematic identification of the goals of education; recognition of the diversity of learners' needs; designing, providing for, and enabling appropriate teaching-learning systems that could realise the identified goals; developing a range of support systems and training; research into existing and new techniques, strategies and technologies for solving problems of education; enabling judicious and appropriate application of technology; appreciation of the role of ET as an agent of change in the classroom, influencing the teacher and the teaching-learning process (NCERT, 2006).

The effectiveness of teaching-learning process is influenced by the nature of learning experiences because it is the learning experience which enables a learner to achieve the instructional objective. In providing learning experiences, a teacher makes use of the teaching-learning aids. Some important reasons for the use of teaching-learning aids are multiplicity of objectives, teacher incompetence, learner motivation and appropriateness of learning experiences. Teaching-learning aids can be classified as audio, visual (verbal), visual two-dimensional, visual 3-dimensional, projected visual, and audio-visual.

Human voice, gramophone records, audio tapes/discs, stereo records, radio broadcast, telephonic conversation may be used as Audio materials. Visual (verbal) materials are of different kind of print materials such as text book and supplementary book, workbook and copybook, programmed learning material and self-instructional module, encyclopedia and reference book, newspaper and magazine, simulation and case report. Chalkboard, chart, poster, map, diagram, graph, photograph, cartoon, comic strip are the two-dimensional non-projected visuals used in classroom teaching. Among the visual 3-dimensional non-projected aids there are model, mock-up, diorama, globe, relief map, specimen, puppet, hologram etc. Slide, filmstrip transparency (OHP), microfilm and microcard, computer are the visual projected (still) materials used to provide learning experiences of different kinds. Furthermore,

audio-visual projected (with motion) media such as motion picture film, television, CCTV, CD/DVD, multimedia computer, slide-tape presentation are some common aids used in teaching.

In the present study we have visited 16 secondary schools in Hooghly District, met with the Headmaster/Headmistress and teachers of those schools and tried to find out from them how various educational technologies used in the instructional process.

Objectives

Main objectives of this investigation are

- 1) To study how various educational technologies were used in the teaching-learning process and
- 2) To find out how academic attainment is related with the use of educational technology.

Sample

Headmaster/Headmistress and teachers of 16 secondary schools were selected randomly from the Hooghly District of West Bengal for the study.

Area of Study

The schools were selected randomly from urban and rural areas from the four Sub-Divisions of the Hooghly District of West Bengal.

Number of Schools

16 schools - eight from urban and eight from rural situated in four Sub-Divisions of the Hooghly District of West Bengal were selected randomly for the study.

Methodology

The study was organised in each of the randomly selected schools of Hooghly District twice in the academic year 2013. The first study was done after First Summative Evaluation and the Second was made after the completion of Second Summative Evaluation. It is noteworthy to mention that during the first phase of data collection all the subjects considered in the study,

were highlighted with the instructional values of modern educational technologies. During each of the above stated study, data were collected from the Headmaster/Headmistress and teachers of the randomly selected secondary schools. During collection of data each of the subjects were interviewed by the investigator with the help of a pre-printed questionnaire prepared by the investigator. The questions were based on diversified areas seeking information about the academic and financial status of the school, average performance level of students, educational technologies normally found and used in teaching-learning process, new technologies used, change of academic attainment after using new technologies and such others. Responses of the subjects and also issues arising out of the discussion at the time of interview were analysed in a manner so that the effect of using conventional and new educational technologies can be recorded.

Sampling

A sample of 16 secondary schools of the Hooghly District of West Bengal were selected randomly for the study. Among these secondary schools - eight were urban and eight rural and they were situated in four Sub-Divisions of the Hooghly District of West Bengal. Out of these schools, four were urban boys, four urban girls, and four rural boys and rest four were rural girls' schools.

Sampling Chart

Sub-Division	Urban Boys	Urban Girls	Rural Boys	Rural Girls	Total
Hooghly Sadar	1	1	1	1	4
Chandannagar	1	1	1	1	4
Srerampore	1	1	1	1	4
Arambagh	1	1	1	1	4
TOTAL	4	4	4	4	16

Findings and Discussion

Some of the significant findings are presented in Tables 1,2, 3 and 4. TABLE : 1 presents data during the first phase of study. It shows that both audio, visual (verbal), visual two-dimensional aids were used in all the secondary schools under consideration, but use of other media like visual 3-dimensional, projected visual, and audio-visual were restricted in some secondary schools. TABLE : 2 represents the Average academic attainment of the urban and rural students in first summative evaluation. The data are presented in seven point grading scale which is followed in the present Continuous and comprehensive evaluation by the West Bengal Board of Secondary Education. After the first phase, it was revealed that during the next phase of study (i.e., in between the days of first and second summative evaluations) all the secondary schools were tried their level best to use more and more modern educational technologies during teaching-learning process and their efforts were reflected in TABLE : 3 and TABLE : 4. It is revealed from the data presented in TABLE : 4 that academic attainment was sharply changed in almost all the secondary schools under consideration.

Data of Tables 1 and 3 are compiled and presented graphically in FIGURE : 1. A comparative account of the differences of academic attainments (Tables 2 and 4) in all secondary schools is presented graphically in FIGURE : 2.

Conclusion

From the findings of the present investigation the most important point that emerged out that educational technologies can change the mind-set of the learners, motivate them in day to day academic activities and help them to enhance their academic performance which in turn help them for smooth running of social life. But unless the results of these efforts are critically analysed in the backdrop of educational realities and suitable steps (viz., proper financial assistance to secondary schools, motivation of teaching community etc.) are taken to fill up the lacunae, the overall outcome of the learners will never be satisfactory.

Acknowledgment

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References

NCERT (2006): Position Paper: National Focus Group on Educational Technology, Published at the Publication Department, Secretary, NCERT, New Delhi.

TABLE : 1

**Use of educational technologies recorded during first phase of study
(in terms of percentage)**

ET	Urban Boys	Urban Girls	Rural Boys	Rural Girls
Audio	100 %	100 %	100 %	100 %
Visual (verbal)	100 %	100 %	100 %	100 %
Visual 2-dm NP	100 %	100 %	100 %	100 %
Visual 3-dm NP	50 %	50 %	25 %	Nil
Projected Visual	25 %	Nil	Nil	Nil
Audio-Visual	25 %	25 %	Nil	Nil

Visual 2-dm NP = Visual 2-dimensional Non-Projected

Visual 3-dm NP = Visual 3-dimensional Non-Projected

TABLE : 2**Average academic attainment of the students in first summative evaluation
(in terms of percentage)**

% of Marks (Av)	Urban Boys	Urban Girls	Rural Boys	Rural Girls
90 - 100	7 %	9 %	3 %	1 %
80 - 89	12 %	15 %	7 %	4 %
70 - 79	23 %	19 %	14 %	15 %
60 - 69	29 %	33 %	25 %	19 %
45 - 59	17 %	13 %	28 %	34 %
25 - 44	9 %	7 %	15 %	17 %
Below 25	3 %	4 %	8 %	10 %

TABLE : 3

**Use of educational technologies recorded during second phase of study
(in terms of percentage)**

ET	Urban Boys	Urban Girls	Rural Boys	Rural Girls
Audio	100 %	100 %	100 %	100 %
Visual (verbal)	100 %	100 %	100 %	100 %
Visual 2-dm NP	100 %	100 %	100 %	100 %
Visual 3-dm NP	50 %	50 %	25 %	25 %
Projected Visual	75 %	50 %	25 %	25 %
Audio-Visual	50 %	50 %	25 %	Nil

Visual 2-dm NP = Visual 2-dimensional Non-Projected

Visual 3-dm NP = Visual 3-dimensional Non-Projected

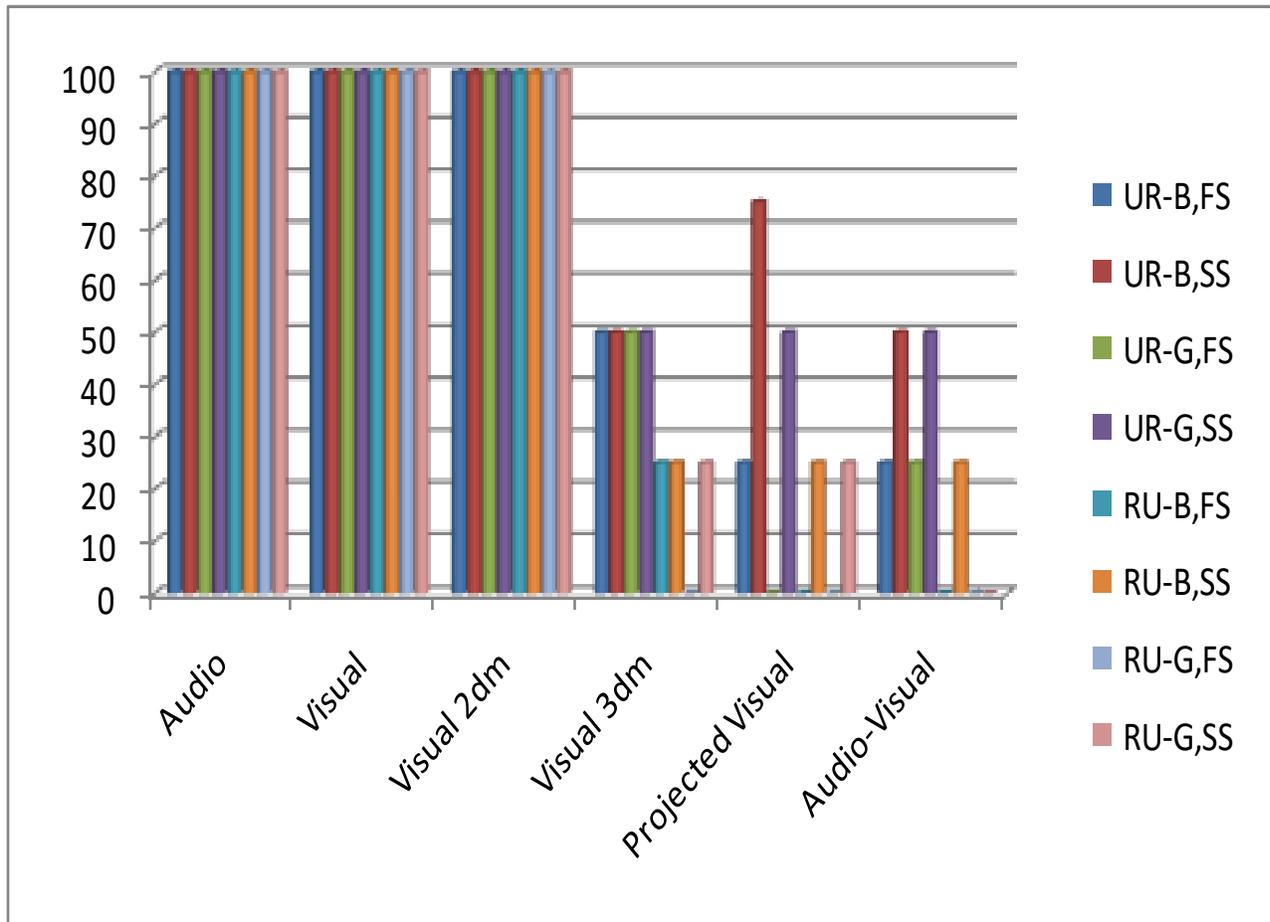
TABLE : 4

**Average academic attainment of the students in second summative evaluation
(in terms of percentage)**

% of Marks (Av)	Urban Boys	Urban Girls	Rural Boys	Rural Girls
90 - 100	11 %	12 %	5 %	4 %
80 - 89	14 %	16 %	9 %	7 %
70 - 79	28 %	25 %	19 %	18 %
60 - 69	25 %	29 %	31 %	24 %
45 - 59	15 %	11 %	20 %	26 %
25 - 44	6 %	5 %	11 %	15 %
Below 25	1 %	2 %	5 %	6 %

FIGURE : 1

A comparative statement of the use of educational technologies recorded during the first and second phases of study respectively

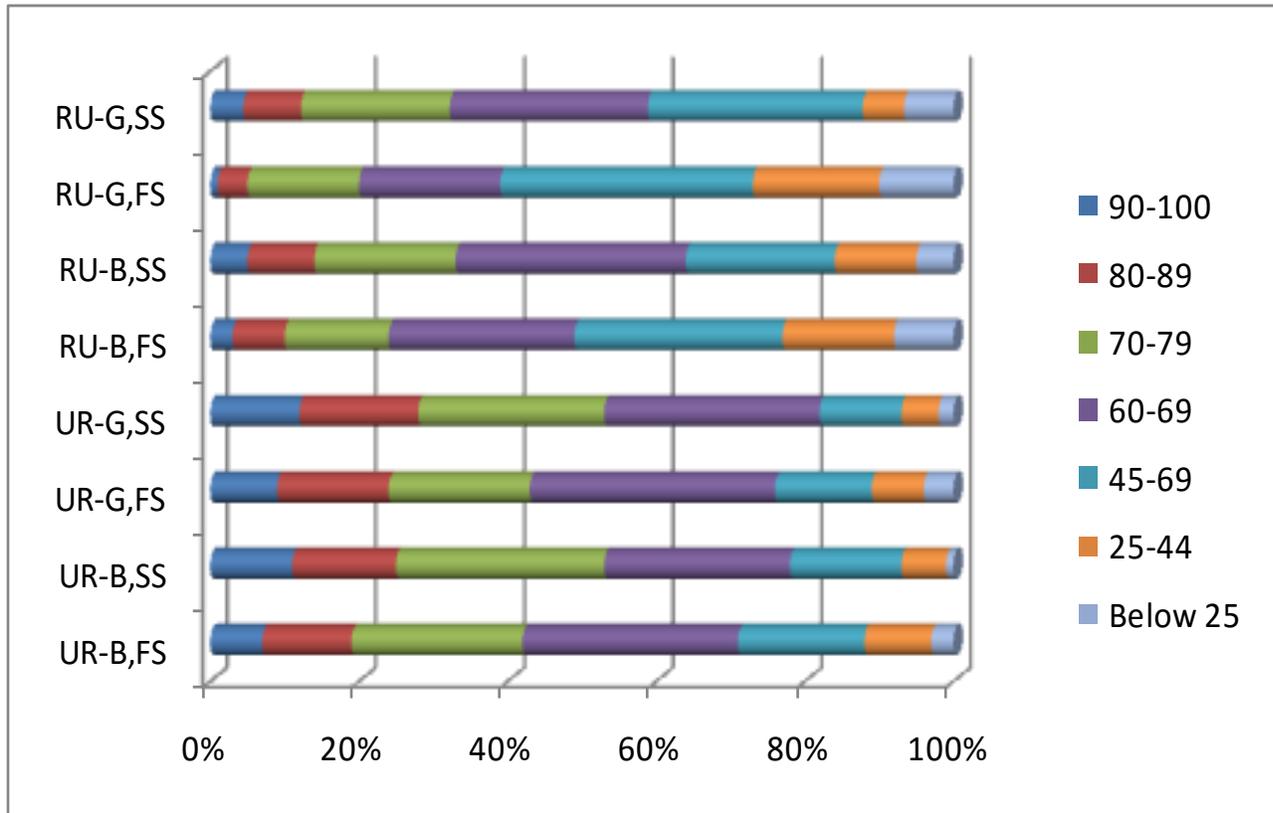


Abbreviations Used :

- UR-B, FS : Use of ET recorded during **First phase** of study in **Urban Boys School**
- UR-B, SS : Use of ET recorded during **Second phase** of study in **Urban Boys School**
- UR-G, FS : Use of ET recorded during **First phase** of study in **Urban Girls School**
- UR-G, SS : Use of ET recorded during **Second phase** of study **Urban Girls School**
- RU-B, FS : Use of ET recorded during **First phase** of study in **Rural Boys School**
- RU-B, SS : Use of ET recorded during **Second phase** of study **Rural Boys School**
- RU-G, FS : Use of ET recorded during **First phase** of study in **Rural Girls School**
- RU-G, SS : Use of ET recorded during **Second phase** of study in **Rural Girls School**

FIGURE : 2

A comparative account of the differences of academic attainments in First Summative Evaluation and Second Summative Evaluation of the students of secondary schools in Hooghly District



Abbreviations Used :

- UR-B, FS : Academic attainments of **Urban Boys in First Summative Evaluation**
- UR-B, SS : Academic attainments of **Urban Boys in Second Summative Evaluation**
- UR-G, FS : Academic attainments of **Urban Girls in First Summative Evaluation**
- UR-G, SS : Academic attainments of **Urban Girls in Second Summative Evaluation**
- RU-B, FS : Academic attainments of **Rural Boys in First Summative Evaluation**
- RU-B, SS : Academic attainments of **Rural Boys in Second Summative Evaluation**
- RU-G, FS : Academic attainments of **Rural Girls in First Summative Evaluation**
- RU-G, SS : Academic attainments of **Rural Girls in Second Summative Evaluation**