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Impact of Computer Based Instructional Package in Teaching of Mathematics at Secondary School Level

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Abstract:
In the present study, comparative study between the computer based instructional package and the traditional chalk-talk method was carried out for 9th graders of secondary school. Sample was consisted of 154 students. Pre-test post –test experimental design was used. A content-based achievement test was prepared and achievement of both groups was measured. Analysis was done with the help of computer programme SPSS. Results of the data analysis indicate that computer based instructional package was more effective than the traditional method o teaching in schools of urban areas.

1. Rationale of the study

Innovations in the field of information technology make remarkable impact on each and every field of human being including education. The National Policy on Education (1986) emphasized the introduction of the technology in education. In Indian context, students and teachers face a lot of problems for individualized instruction during the teaching-learning process. Computer assisted instruction is a boon for individualization of instruction (Srinivasan & Muthu Manickam, 2009). Computer assisted instructional package will also be helpful for distance learning, mass education and drill work. The researcher found that there is no computer assisted instructional package for secondary school students in vernacular language that is Gujarati. Hence, the researcher decided to develop computer assisted instructional package for secondary school students in the vernacular language.

2. Review of Related literature

Rose, Antony Stella V, (1992) developed Computer assisted instructional package and found out its effectiveness. The sample consisted of three groups of 32 students in each. Each group was composed of students of standard IX selected from three schools of Tamilnadu state. The results showed that the computer assisted instruction strategy was superior to the traditional method of instruction.

Mahajan, Sanjay L. (1994) compared the mean achievement of the students, taught singular and plural through the computer assisted instruction and traditional method. The results revealed that the computer assisted instruction was much more effective than the lecture method of teaching.

Agrawal R. (1995) compared the relative effectiveness of two methods of teaching. Computer assisted instructional programme was prepared for conceptual understanding of Biology. 160 students of central school of Bareli were the sample. The finding was that both were quite effective for teaching biological concepts.

Rangraj, K.R. (1997) developed a computer assisted instructional package in XII standard Physics and found effectiveness of the same. XII standard students were sample of the study. The mean achievement of computer assisted instruction group was higher than the mean achievement of the traditional group.

Srinivasan P. (2009) developed the computer assisted instructional programme on the topic ‘learning’ in Tamil language. Programmes has 197 frames. Sample consisted of 50 students of Diploma in Teacher

Education course. Pre-test- Post-test design was used. The mean achievement score of the computer assisted instruction group was significantly high than the traditional group.

3. Objectives of the study

1. To develop the computer assisted instructional package for IX standard students on the topic of computation.
2. To find out effectiveness of the computer assisted instructional package with respect to the traditional method of teaching.

4. Hypotheses

Ho_1: There will be no significant difference on average achievement score of the experimental group and the controlled group.

Ho_2: There will be no significant difference on average achievement score of girl students of the experimental group and the controlled group.

Ho_3: There will be no significant difference on average achievement score of boy students of the experimental group and the controlled group.

Ho_4: There will be no significant difference on average achievement score of rural areas of the experimental group and the controlled group.

Ho_5: There will be no significant difference on average achievement score of urban areas school students of the experimental group and the controlled group.

5. Methodology

5.1 Sample

Sample was consisted of two co-education Gujarati medium secondary schools of Rajkot district. Two divisions of standard 9^{th} were selected from each school. Sample was consisted of 80 boys and 74 girls. As far as area is concerned, 69 students were selected from the urban area and 85 students were selected from the rural area.

5.2 Tool of study

A computer based instructional package for the topic 'computation' was developed for the secondary school students of 9^{th} graders. It has been prepared in branching style of programming. Animations, FoxPro, Asp, Dream weaver and Coral Draw were used to prepare the instructional package. It has been tried out on individuals as well as small group. The entire instructional package was developed in Gujarati language. LMG-Arun font was used at initial stage and then fonts were converted into pictures and the final instructional package became font barrier free. The full programme itself was 'Mouse Driven'.

5.3 Variables of the study

Learning method, Gender and area of the school were independent variables while achievement on post-test was dependent variable.

5.4 Procedure of the Experiment

The Computer Assisted Instructional package was applied to one division and the traditional method of teaching was applied to the remaining divisions of each school. Common achievement test was applied to both groups. Data analysis was done on computer programme SPSS.

6. Results of the study

1. Achievement of the Computer Assisted Instructional package was significantly higher than the traditional method of teaching. The same result was shown in urban areas schools. Boys and girls of the urban areas school were much benefited by Computer Assisted Instructional package in comparison to the traditional method of teaching.

2. In rural areas' school significant difference of achievement was not shown. The same result was reflected in boys' and girls' groups of the rural areas' school.

7. Conclusion

Modern age is the age of computer and computer has already entered territory of education. At all levels of education, computer has become must. At secondary school level also, the computer based instructional programme would prove to be obligatory both for the teachers as well as students. Hence, the studies like this are nonetheless important.

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