

Development and Impact of Mathetics Style of Programmed Learning Software

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ABSTRACT

Mathematics is an essential subject inevitable to each and every individual. The invention of computer is a gift to human functions and abilities, now every individual can compute complex mathematical operation very easily with computers. So the researcher aim is to develop mathetics style of programmed learning software and to find out the impact of mathetics style of programmed learning software on arithmetic achievement of 10thstd students. The study was experimental in nature. The researcher randomly selected 120 (60-Boys and 60-Girls) students from CBSE schools of Kalaburagi District, Karnataka. For statistical analysis researcher used Mean, SD and t-test. Researcher studied the impact of software on the students of experimental group and found effective in learning Arithmetic. By using Likert's reaction scale researcher found 90% of the students agree with all the principle and characteristics of the software programme. Researcher found that there is a significant difference between control group and experimental group of students on arithmetic achievement by using software and there is a significant difference between boys and girls mean scores of the experimental group students on arithmetic achievement by using software.

1. Introduction

The concept of computer aided instruction is not new. According to Wang and Sleeman (1993) the origin of computer aided instruction can be traced back to the invention of small multiple choice items scoring machine by Sidney L. Pressy in 1924 and B.F. Skinner' work to improve and expand the concept of programmed instruction in late 1950s and early 1960s. The use of computer for programmed instruction started in late 1960s.

During recent past many innovative methods of teaching has been developed programmed learning and Computer assisted Instruction. Some of the modern method developed computer assisted instruction means the teacher while teaching uses computer with proper software for his teaching.

Mathematics is an essential subject inevitable to each and every individual. The invention of computer is a gift to human functions and abilities, now every individual can compute complex mathematical operation very easily with computers. So the investigator is planning to develop instructional software package so as to facilitate the students to learn the Mathematics units very easily and effectively.

2. Review of related literature

Yadav, (2000) conducted a study entitled "A study of the effectiveness of the Computer Software for students of standard I". His study revealed that developed package helped the students in vocabulary and grammar whereas no effect in comprehension was observed.

Jantli, Ramachandra T (2002) Conducted study on "Development and validation of computer Instructional package on selected units in mathematics for IX standard" The study found that the students learnt through computer assisted self-instructional package extremely well than other groups. And the

students learnt through the programmed text material frames achieved significantly more than those learnt through traditional method.

Jothiokani, N. and Thiagarajan, A.P. (2004) studied "Effectiveness of Computer Assisted Instruction in Mathematics among B.Sc. Degree Student". They found that there was no significant difference between the mean scores of pre-test for control groups and the experimental groups in all six units with reference to the objectives such as knowledge, Comprehension and Application and their level of achievement such as Low, Average and High Achievers.

Ramani & Patadia, (2012) conducted a study on "development and Try-out of the Programmed Learning Material in Mathematics for class XI students studying in schools affiliated to Gujarat Secondary and Higher Secondary Education Board (GSHSEB)". Their study was found to be effective in teaching probability to XI standard science streams students as the achievement test score of experimental group students was found significantly higher than the achievement test score of the control group students.

3. Objectives of the study

- 1) To develop mathetics style of programmed learning software.
- 2) To find out the impact of mathetics style of programmed learning software on arithmetic achievement of 10thstd students.

4. Hypotheses of the Study

- 1) There is a significant impact of mathetics style of learning software on arithmetic achievement.
- 2) There is a significant difference between posttest scores of control group and experimental group on arithmetic achievement by using software.

3) There is a significant difference between boys and girls posttest mean scores of experimental group on arithmetic achievement by using software.

divided into Experimental and Control groups (60each i.e. 30-Boys and 30- Girls).

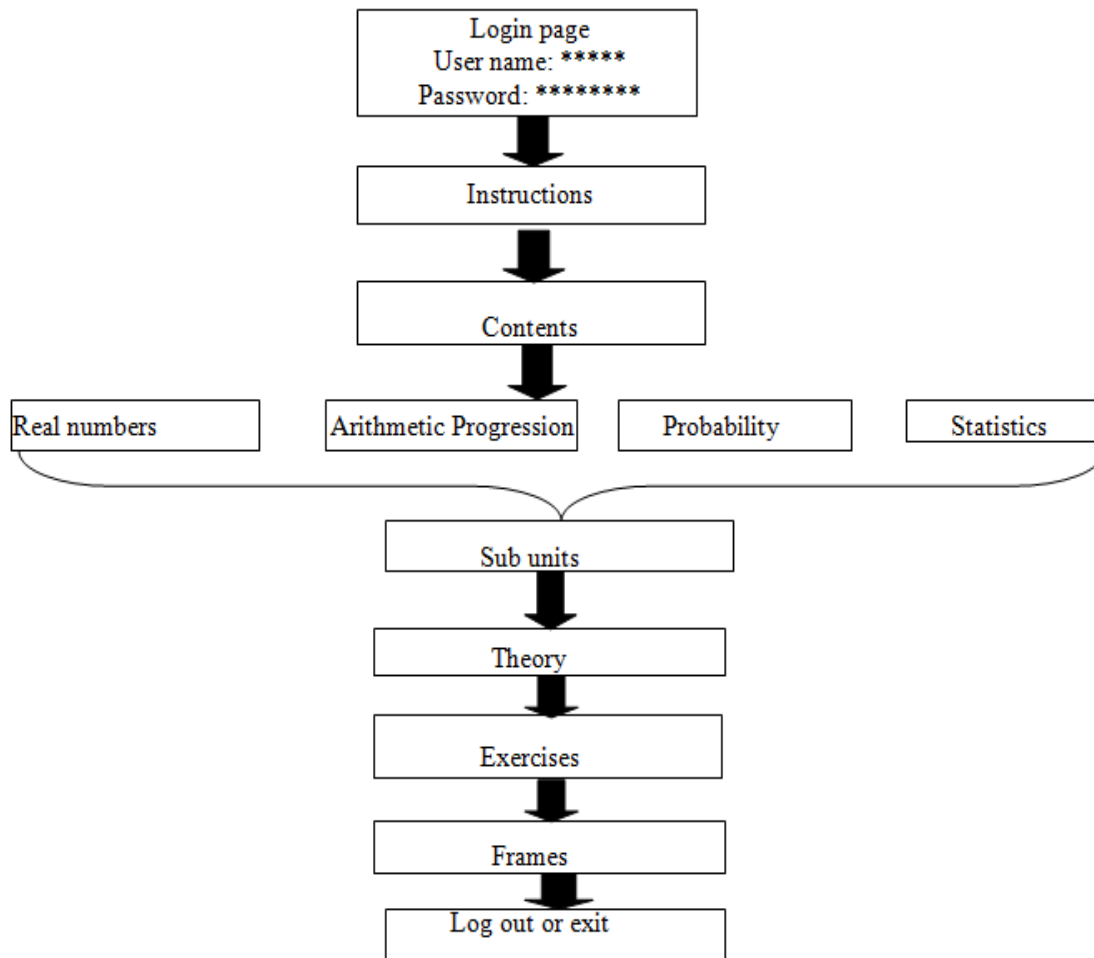
5. Methodology for the Study

a) Sample selection :

The study was experimental in nature. It was carried out on the students of 10th standard. The researcher randomly selected 120 students from CBSE schools of Kalaburagi District, Karnataka. In these schools, students were further

b) Tools Used:

In the present study the tool was developed and validated. With the help of research guide, the researcher created the flow chart and then prepared the software with the help of software experts. The flow chart showing the details of mechanism of validated programmed learning material as shown below.



After the learning package was developed, the filtration was done in two ways.

kept in mind and due weightage was given to them in finalizing the software package.

Experts' Opinions: The prepared package was shown to technical as well as subject experts. Their suggestions were duly followed.

a) **Statistical technique used:** Mean, SD and t-test.

b) **Analysis and Interpretation of the data:**

H₁: There is a significant difference between posttest scores of control group and experimental group on arithmetic achievement by using software.

Tryout: The whole package was presented to a small group of students and their reactions and responses were noted. Thus the views of both experts and the students were

H₀: There is no significant difference between posttest scores of control group and experimental group on arithmetic achievement by using software.

Table-1: Calculation t-value for the posttest scores of control group and experimental group on arithmetic achievement by using software.

Variable	N	M	SD	t- value	df	Sig.(2-tailed)
Control group	60	28.05	7.065	13.263	59	0.000
Experimental group	60	42.03	3.430			

From the Table-1 it is observed that sig. (2-tailed) value is 0.000 which is smaller than 0.05 that means null hypothesis is rejected, so the research hypothesis is accepted. So, there is a significant difference between control group and experimental group of students on arithmetic achievement by using software.

H₂: There is a significant difference between boys and girls posttest mean scores of experimental group on arithmetic achievement by using software.

H₀: There is a no significant difference between boys and girls posttest mean scores of experimental group on arithmetic achievement by using software.

Table-2: Calculation t-value for the boys and girls posttest scores of experimental group on arithmetic achievement by using software.

Variable	N	M	SD	t- value	df	Sig.(2-tailed)
Boys scores	30	41.00	3.732	2.448	29	0.021
Girls scores	30	43.07	2.791			

From the Table-2 it is observed that sig. (2-tailed) value is 0.021 which is smaller than 0.05 that means null hypothesis is rejected, so the research hypothesis is accepted. So, there is a significant difference between boys and girls mean scores of the experimental group students on arithmetic achievement by using software. By observing mean scores of girls scores is more than boys scores, hence girls achieved more than boys.

90% of the students agree with all the principle and characteristics of the software programme.

6. Conclusion

Researcher came to know through this study that traditional method of teaching Mathematics will not be effective to the students. Modern methods like programmed instruction and computer assisted instruction should be adopted. The study also revealed that the achievement of the students in Mathematics when learnt through CAI have achieved significantly higher than other methods. Hence more and more standardized software packages may be developed and used in the teaching learning process.

Researcher studied the impact of software on the students of experimental group and found effective in learning Arithmetic. By using likert’s reaction scale researcher found

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