International Journal of Research in Social Sciences
Vol. 6 Issue 11, November 2016,
ISSN: 2249-2496 Impact Factor: 6.278
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

IMPACT OF MATHETICS STYLE OF PROGRAMMED LEARNING ON ARITHMETIC ACHIVEMENT OF 10TH CLASS STUDENTS

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ABSTRACT

The aim of the study is to find out the impact of mathetics style of programmed learning on arithmetic achievement of 10thstd students. The study was experimental in nature. It was carried out on the students of 10th standard. The researcher randomly selected the 120 students from CBSC schools of kalaburagi District, Karnataka. In these schools, students were further divided into Experimental and Control groups (60each i.e. 30- Boys and 30- Girls), which were equated on the basis of Intelligence, creativity variables. Pre-test and posttest was administered to both the groups for assessing the mathematics achievement. The data obtained was analysed by calculating mean, SD and t-test of both the groups. From the Conclusion and finding obtain from study we can say that mathetics style of programme learning material is far effective than traditional method. It is also useful for the students because it helps all type of students to learn at their own pace.

Key words: Mathetics style programme, Arithmetic achievement, Intelligence, Creativity.

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INTRODUCTION:

Education is a systematic process through which a child or an adult acquires knowledge, experience, skill and sound attitude. It makes an individual civilized, refined, cultured and educated. Education is a continuous and lifelong process. It starts from the womb of the mother and continues till death. It is the process of development from infancy to maturity. It includes the effect of everything which influences human personality.

"Education is the most powerful weapon which you can use to change the world." The teacher plays a prominent role in the life of the students. The teacher show path towards success and enrich the personality of their students by imparting ethical and academic knowledge, act as the guide for life and bring out the wide talents of their students and sharpen it in order to bring out the best results.

In education, we use learning materials in various forms – print, audio, video, multimedia, web, etc. In order to help learners study these and learn in their own time and at their own pace, these materials are designed in such a way to have the teacher built in to facilitate the learning process. We call these the characteristics of self-learning materials.

There are many kinds or techniques of self-learning material. Some techniques of it are mentioned here.

1. Exercise method
2. Work card method
3. Simple learning material
4. Programmed learning
5. Language laboratory
6. Teaching machine

Programmed learning is a method of teaching. The learning programme is a planned sequence of instructional material which the learner works through at his own pace. The material is arranged in small steps which require a frequent active response from the learner. Immediate knowledge of the accuracy of the response is an integral part of the process.

STYLES OF PROGRAMMED LEARNING:

There are three types of programming.

1. Linear Programming.
2. Branching Programming.
3. Mathetics.

MATHETICS PROGRAMMING:

The systematic procedure of Mathetics was first described by **Thomas F. Gilbert** in his journal Mathetics published in **1962**. In the words of Gilbert "Mathetics is defined as a systematic application of reinforcement theory to the analysis and construction of complex repertoires which represent the mastery in subject matter."

"Mathetics is a training system which provides the programmer with a set of procedures with which to diagnose training problems". Mathetics is also termed as **'Retrogressive Chaining'**.
In this style a consistent pattern of trios – demonstration phase, prompted phase and release phase. In the first exercise, the learner is demonstrated the response. In the second exercise, the learner is required to emit the response with help of prompts and in the third exercise responses came without prompts.

OBJECTIVES OF THE STUDY:

1) To find out the impact of mathetics style of programmed learning on arithmetic achievement of 10^{th}std students.

HYPOTHESES OF THE STUDY:

1) **H_1:** There is a significant difference between pre-test and post-test scores of control group on arithmetic achievement.

2) **H_2:** There is a significant difference between pre-test and posttest mean scores of experimental group on arithmetic achievement.

3) **H_3:** There is a significant difference between posttest mean scores of experimental group and control group on arithmetic achievement.

4) **H_4:** There is a significant difference between boys and girls mean scores of experimental group on arithmetic achievement.

DESIGN AND SAMPLE OF THE STUDY:

The study was experimental in nature. It was carried out on the students of 10th standard. The researcher randomly selected the 120 students from CBSC schools of kalaburagi District, Karnataka. In these schools, students were further divided into Experimental and Control groups (60each i.e. 30- Boys and 30- Girls), which were equated on the basis of Intelligence, creativity variables. The design was followed by three operational stages viz. pre test, programme treatment and posttest.

Tools used in the study:

1) The Intelligence test by G.C. Ahuja and The creativity test by Baqer Mehdi.

2) A self constructed Achievement test for pre and post test to assess the mathematics Achievement.

3) A self developed and validated Instructional Material based on mathetics style of programming on Arithmetic units of 10th standard.

DATA COLLECTION:

For assessing the Mathematics achievement a self constructed achievement test was administered to both the groups as pre-test. Students of control group were taught with traditional method and students of experimental group were taught with instructional material based on Mathetics style of programming. After the treatment, post test was administered to both the groups for assessing the mathematics achievement.

The data obtained was analysed by calculating mean, SD and t-test of both the groups by using SPSS version 19.

DATA ANALYSIS AND INTERPRETATION:

H_1: There is a significant difference between pre-test and post-test scores of control group on arithmetic achievement.

Table-1: Calculation t-value for the pre-test and posttest scores of control group using SPSS.

Control	**N**	**M**	**SD**	**t- value**	**df**	**Sig.(2-**

group						**tailed)**
Pre-test scores	60	27.63	7.052	2.020	59	0.048*
Posttest scores	60	28.05	7.065			

*significant at 0.05 level

From table-1 it is observed that the pre-test scores of control group N = 60, Mean = 27.63, standard deviation = 7.052 and posttest scores N =60, Mean = 28.05, Standard deviation = 7.065and calculated t-value 2.020 and obtained Sig. (2-tailed) value is 0.048 which is significant at 0.05 level. Therefore above stated hypothesis is accepted.

H_2: There is a significant difference between pre-test and posttest mean scores of experimental group on arithmetic achievement.

Table-2: Calculation t-value for the pre-test and posttest scores of experimental group.

Control group	**N**	**M**	**SD**	**t- value**	**df**	**Sig.(2-tailed)**
Pre-test scores	60	28.57	6.781	16.580	59	0.000*
Posttest scores	60	37.25	4.796			

The table – 2 Shows that the pre-test scores of Experimental group N=60, Mean = 28.57, standard deviation = 6.781 and posttest scores N= 60, Mean = 37.25, Standard deviation= 4.796 and calculated t-value is 16.580 and obtained sig. (2-tailed) value is 0.000 which is significant at 0.05 level. Therefore above stated hypothesis is accepted. It can be inferred that this significant difference is due to the teaching method.

H_3: There is a significant difference between posttest mean scores of experimental group and control group on arithmetic achievement.

Table-3: Calculation t-value for the posttest scores of experimental group and control group.

Variable	**N**	**M**	**SD**	**t- value**	**df**	**Sig.(2-tailed)**
Experimental group	60	37.25	4.796	8.405	59	0.000*
Control group	60	28.05	7.065			

The above table reveals that the posttest scores of Experimental group N=60, Mean = 37.25, Standard deviation = 4.796 and posttest scores of Control group N = 60, Mean = 28.05, standard deviation = 7.065 and calculated t- value is 8.405 and obtained sig. (2-tailed) value is 0.000 which is significant at 0.05 level. Therefore the above stated hypothesis is accepted.

H_4: There is a significant difference between boys and girls posttest mean scores of experimental group on arithmetic achievement.

Table-4: Calculation t-value for the boys and girls posttest scores of experimental group.

Variable	**N**	**M**	**SD**	**t- value**	**df**	**Sig.(2-tailed)**
Boys scores	30	36.20	5.404	1.876	29	0.071
Girls scores	30	38.30	3.914			

The table – 4 reveals that the Boys posttest scores of Experimental group N=30, Mean = 36.20, Standard deviation = 5.404 and Girls scores N= 30, Mean = 38.30, standard deviation= 3.914 and calculated t-value is 1.876 and obtained sig. (2-tailed) value is 0.071 which is not significant

at 0.05 level. Therefore the above stated hypothesis is rejected. By observing mean scores of girls scores is more than boys scores, hence girls are achieved more than compared to boys.

CONCLUSION:

From the Conclusion and finding obtain from study we can say that mathetics style of programme learning material is far effective than traditional method. It is also useful for the students because it helps all type of students to learn at their own pace. This type of programme also useful for correspondence and private students, who don't have direct contact with teachers. Moreover this programme saves time and energy as the students are able to learn through it in short time. This study is very useful in field of teaching Mathematics. Hence such a new innovative experiments should be go on in future New researches play an important role for the development and progress of the nation.

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