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COMPARATIVE STUDY ON JERK TECHNOLOGY AND SELF LEARNING METHOD IN THE MATHEMATICS PEDAGOGY

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ABSTRACT

The key goal of the present study aims to compare Jerk technology Method and Self Learning among the Prospective Teachers undergone Mathematics Education. With the recent teaching technology of the Jerk Technology this study was adapted with Experimental Research. The B.Ed. Trainees of Madurai District, 40 Samples were selected for this study. The Purposive Sampling Techniques was adapted to find out the Comparison of Jerk Technology with Self Learning. The major finding reveals that there is a significant difference between Jerk Technology and Self learning with respect to Gap Closure and Effect size in the Pre- test Post-test Scores. The Mean score of the Control group and Experimental Post are respectively. (46.09, 46.31).Hence the Effect of the new innovative Technology has been made difference in the Scholastic performance.

Key Words: Jerk Technology, Self-Learning, Prospective Teachers, Mathematics Pedagogy

INTRODUCTION

Education has been considered as one of the important components of change, modernization and development all over the world. Thus, countries try to improve education by adopting and using the latest appropriate technology according to their capabilities. This shows that people are not very satisfied with the type and quality of education. The situation is the same in India. This shows that various committees were created with the hope of getting suggestions to improve education. Apart from that, the Indian government is trying to use the latest technology to improve education with its limited resources. (Jain, n.d.)This is because the latest technology such as multimedia, internet, video conferencing etc. is available up to the school level but not everywhere. The gap in acquiring the latest technology is narrowing. (Nurwulan & Selamaj, 2020)With all the shenanigans of the central and state governments,

it is difficult to provide the latest technology to all the schools, colleges and universities. It shows the need to think about technology that improves education, is cost-effective and ubiquitous.(Berscheid & Kröger, 2021)

JERK TECHNOLOGY

Jerk technique is a methodical teaching strategy that intentionally incorporates jerks into the handling of the material to get students engaged and receptive in the classroom.(Maharana, n.d.)

TOOLS OF JERK TECHNOLOGY

There can be different ways of giving JERK. Its selection depends on the target group, purpose, subject matter, context, teacher's personality, etc. Nevertheless, different TOOLS OF JERK TECHNOLOGY are as follows:

various tools like Mirror image writing (MIW) , Disproportionate word writing (DWW),small writing(SW),double negative sentences (DNS),Unusual Sentence Construction (USC),Logically illogic Conclusion (LIC),Use Multiple Words (UMW),Give Misfit Example (GME),Teacher's known Mistake (TKM),

OBJECTIVES OF THE STUDY

The major objectives of study are

1. To find out whether there is any significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievement in Mathematics.
2. To find out whether there is any significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics.
3. To find out whether there is any significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics with refer to Gap closure.
4. To find out whether there is any significant difference Effect size between control group post-test and experimental post-test scores of experimental group B.Ed. teacher trainees in their achievement in Mathematics.
5. To find out whether there is any significant difference among Pre-test, Post-test and Delay Post-test of Experimental group Achievement Scores in Mathematics over a difference time period of treatment among B.Ed. teacher trainees

HYPOTHESIS OF THE STUDY

1. There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievement in Mathematics.
2. There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics.
3. There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics with refer to Gap closure.

4. There is no significant difference Effect size between control group post-test and experimental post-test scores of experimental group B.Ed. teacher trainees in their achievement in Mathematics.
5. There is significant difference among Pre-test, Post-test and Delay Post-test of Experimental group Achievement Scores in Mathematics over a difference time period of treatment among B.Ed. teacher trainees

METHODOLOGY

Sample:

Purposive Sampling technique was used in this study. The sample of the study was comprised of 35 student teachers in B.Ed. college. The score obtained in the mastery test administered prior to the transaction of the lesson by a pupil (subject) was treated as pre-test score

POST-TEST SCORE

The score secured by a learner in the mastery test administered after the transaction of the lesson in the class room was treated as the post-test score of the subject concerned.

RE-TEST SCORE

The score obtained by a subject of the experiment after the expiry of 15 days from the date of conduct of experiment was treated as the retention score for the subject concerned

EXPERIMENTAL DESIGN

Present study was experimental in nature and employed pre-test post-test parallel group design. The layout of this design was as follows:

G1 O1 X1 O2

G2 O1 X2 O2

Where X1 = Treatment was given by Module with Jerk Technology

Where X2 = Treatment was given by PLM without Jerk Technology

O1 = pre-test

O2 = Post-test

There were two groups. One group was randomly considered as Experimental Group Number 1 and another as Experimental Group Number 2. There were two levels of Treatment. 1. Module with Jerk Technology 2. Module without Jerk Technology. The student teachers of both the Experimental Group used module as self learning material. They learnt themselves as per instructions given in module. Investigator was present to solve their problems. Three units of Environmental Education were taught through Module with Jerk Technology and Module without Jerk Technology to Experimental Group Number 1 and Experimental Group Number 2 respectively at the rate of 1-hour minutes per day for 40 days.

Null Hypothesis:01

There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievement in Mathematics.

Table: 01

Significant difference between the control and experimental group B.Ed. teacher trainees in their pre-test scores of achievements in Mathematics

Group	Number	Mean	SD	't' value	df	Remark
Post-test score of Control Group	35	46.09	2.7693	0.263	68	Not Significant
Post-test score of Experimental Group	35	46.31	4.3371			

(At 0.01 level of significance the table value of 't' is 2.576)

The above table 1 shows that, control and experimental group mean scores value is 46.09 and 46.31 respectively with a standard deviation of 2.76 and 4.33 respectively Hence, the null hypothesis" There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievement in Mathematics." is accepted . Hence there is significant different. Both control group and experimental student teachers have similar knowledge before the treatment.

Null Hypothesis:02

There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics.

Table: 02

Significant difference between the control and experimental group B.Ed. teacher trainees in their pre-test scores of achievements in Mathematics

Group	Number	Mean	SD	't' value	df	Remark
Post-test score of Control Group	35	70.09	5.32	17.67	68	Significant
Post-test score of Experimental Group	35	91.86	4.97			

(At 0.01 level of significance the table value of 't' is 2.576)

The above table 2 shows that, control and experimental group mean scores value is 46.08 and 46.31 respectively with a standard deviation of 5.32 and 4.97 respectively. The experimental group mean scores (M=91.86) are higher than the control group mean scores (M=70.09). The calculated' value (t=17.67) is greater than the critical values of 2.576 at 0.01 level of significance with df=68. Hence, the null hypothesis" There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievement in Mathematics." is rejected. Experimental group is better than control group in their post test performance of achievement in Mathematics. Hence jerk technology is better than programme Learning Method in their achievement test.

Null Hypothesis:03

There is no significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics with refer to Gap closure.

Table 03

Difference between the control and experimental group B.Ed. Teacher trainees

In their post-test scores of achievements in Mathematics with refer to Gap closure

S;No	Control Group	Experimental group
1	44.52	84.84

The table 03 shows that the gap closure percentage of the control group is 44.42 and experimental group is 84.84,. The gap closure percentage of control group shows low percentage of Gap closure, whereas the gap closure percentage of experimental group shows higher percentage of Gap closure. It is evident from the above table that the experimental groups shows high gap closed and low gap unclosed than the control group. Hence there is significance of difference exits between control group and experimental group in their achievement in Mathematics with respect to gap closure.

Null Hypothesis: 04

There is no significant difference Effect size between control group post-test and experimental post-test scores of experimental group B.Ed. teacher trainees in their achievement in Mathematics.

Table: 04

Effect size between Control and Experimental group mean scores of post-test

Test	Group	Mean	SD	Effect size(d)	Effect
Achievement in Mathematics	Control Group of Post-test	70.09	5.32	4.23	Large Effect
	Experimental Group of Post-test	91.86	4.97		

The close perusal of the above table 04 reveals that the mean of the control group in post test is 70.09 and experimental group is 91.86. The effect size is found to be 4.23 which represents the large effect. Hence, Experimental group performance is better than control group. Hence, it is concluded that the exposure of Flipped classroom strategies in the achievement in Mathematics helps the experimental group to perform tremendously in their achievement. Thus, experimental group who were taught using flipped classroom strategies in their achievement in Mathematics higher than control group who were taught using conventional methods visualized.

REPEATED MEASURE

Pre-test and Post- test analysis with ANCOVA and Repeated Measure

Null Hypothesis: 5

There is no significant difference among Pre-test, Post-test and Delay Post-test of Experimental group Achievement Scores in Mathematics over a difference time period of treatment among B.Ed. teacher trainees

Table 05

Descriptive Statistics: Experimental Group B.Ed. trainees Achievement scores in achievement in Mathematics over a difference time period

Group	Assessment	N	Mean	Std. Deviation
Control Group	Pre-test	35	46.31	4.33
	Post-test	35	91.86	4.97
	Delayed Post-test	35	84.17	2.35

Table 5.1

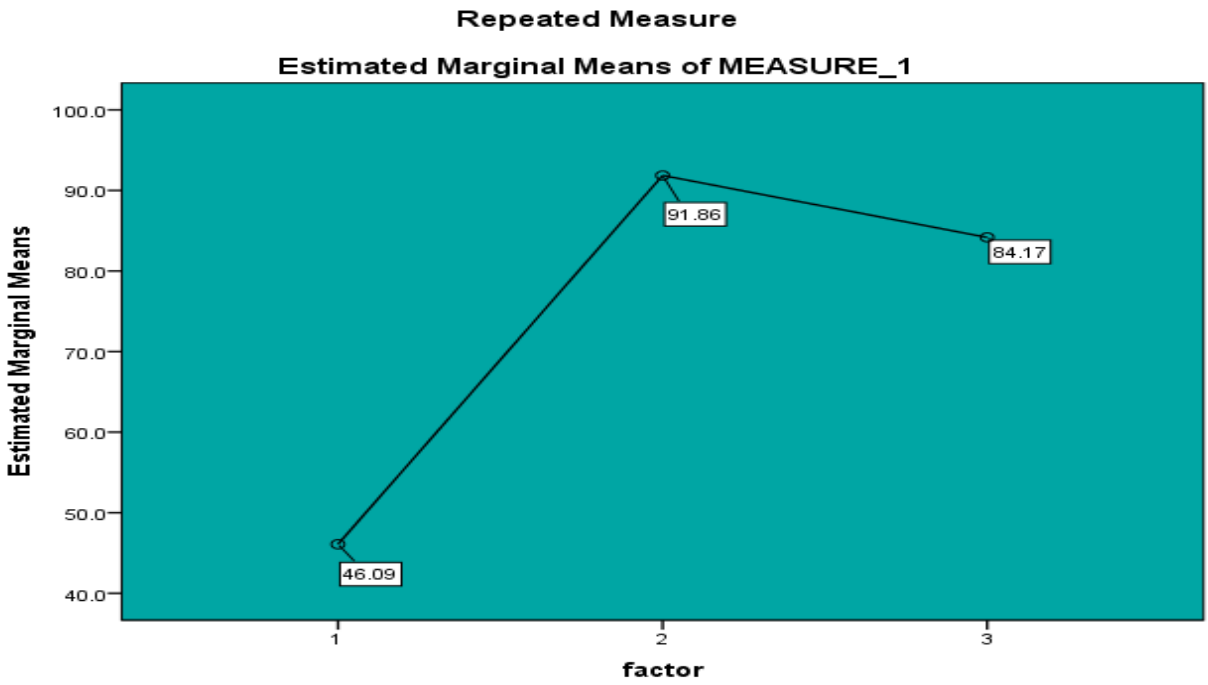
Partial Eta Square

Effect	Value	F	Hypothesis	Error df	Sig.	Partial Eta Squared
Wilks' Lambda	0.012	1365.788[b]	2.000	33.000	.000	.988

ANCOVA repeated measures analysis of variance was conducted in order to compare scores of achievement test among B.Ed. teacher trainees with a statistic test at time 1 (before intervention), time 2 (after intervention), and time 3 (15 days back). The means and standard deviations are presented in Table 5.1

The multivariate test wilk's lambda reveals the value as 0.012, F value as 1365.788[b], p value .000, and partial

Etd Squared value 0.98 which indicates the large effect, B.Ed. teacher trainees Achievement score in Mathematics over a difference period of time. Therefore it is concluded that the achievement score has significantly increased over a period of time.



MAJOR FINDING OF THE STUDY

1. There is significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievement in Mathematics.
2. There is significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics.
3. There is significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics with refer to Gap closure.
4. There is significant difference Effect size between control group post-test and experimental post-test scores of experimental group B.Ed. teacher trainees in their achievement in Mathematics.
5. There is significant difference among Pre-test, Post-test and Delay Post-test of Experimental group Achievement Scores in Mathematics over a difference time period of treatment among B.Ed. teacher trainees

INTERPRETATION AND DISCUSSION

The finding of the present study result revels that There is significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievement in Mathematics. This is may be due to fact that This study coincidence with the findings of the current study highlighted there is significant difference between the

control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics. This finding is supported by the finding of Maharana Nish(2017) Shrinivasan (1999), Tourani (2001), Tourani (2001), Verma(2007), Maharana.N.(2011) used Jerk Technology in researches and found that treatment provided to the students proved to be significantly superior to lecture method in terms of achievement in different subjects of students

- The findings from this study stated that there is significant difference between the control and experimental group B.Ed. teacher trainees in their post-test scores of achievements in Mathematics with refer to Gap closure. With the treatment of this Jerk Technology strategy the Experimental group shows high performance due to the innovative teaching technology.
- The findings of the present study results demonstrate that There is significant difference Effect size between control group post-test and experimental post-test scores of experimental group B.Ed. teacher trainees in their achievement in Mathematics. When compare to these two groups the Experimental group infused with the Effct size of the treatment shows that creative methodology of the Jerk Technology reveals more effective.This finding is supported by the finding of Ruchika Sharma and Dr Jaspal Singh Warwal(2020)To help learners increasing the presence of mind in the classroom, to establish proper rapport between student and teacher, to break the monotony in the classroom By all accounts the academic cheating remains largely undetected and it is the need of the hour to develop various strategies and techniques to more effectively address the problems within schools.
- The findings of the present study results point out that there is significant difference among Pre-test, Post-test and Delay Post-test of Experimental group Achievement Scores in Mathematics over a difference time period of treatment among B.Ed. teacher trainees. This finding is aligned with those reported in prior literature including S.Anbalagan and K.Balasubramanian (2023).

Conclusion

The study's findings demonstrated that Jerk Technology was superior in terms of academic accomplishment. When pre-achievement and IQ were considered as factors, it was discovered that the enhanced test results on the accomplishment test were much better. Students became more engaged in class thanks to Jerk Technology. The students' receptivity was enhanced by activity. The Jerk

Technology helps students compete against one another to attain a goal, which improves their higher-order thinking and processing abilities. The study's findings suggested that Jerk Technology might enhance education and be applied wherever because it is affordable. Jerk Technology therefore suggests that the pupils do well.

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