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THE EFFECT OF PARTICIPATORY LEARNING TO LOWER ORDER THINKING OF STUDENTS AT SECONDARY SCHOOL LEVEL

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ABSTRACT

The use of participatory learning in classrooms create joy and fun and voluntary engagement of the learner in the learning situation. Teachers can use participatory learning in any age levels as it easily tracks the learner to the learning environment, so undoubtedly can say it is superior to the prevailing mode of instruction. The classroom is undergoing a drastic transformation to equip the learners with 21st century skills. Teachers should view participatory learning as a challenge and equip themselves with varied aspects of participatory learning to meet the changing needs and trends of education. The present investigation was a quasi- experimental approach with pre-test post-test non-equivalent comparison group design. The sample comprised of 60 secondary school students studying in standard IX. Academic Achievement Test based on Lower Order Thinking (LOT) and Lesson Templates based on Participatory Learning were the major tools used for the study. Data obtained were analyzed by using ANOVA and ANCOVA. The results showed there is significant difference in the means of experimental and control groups with respect to Lower Order Thinking.

Keywords: Lower Order Thinking, Participatory Learning.

1. INTRODUCTION

Participatory learning is learning through actively engaging, participating, constructing knowledge, and participates with a learning experience through collaborative learning, co-learning and engagements. In participatory learning, learners as learning center therefore, reciprocal processes among learners are vital to produce more and strong relationships to executed learning activities for continuous learning by produce knowledge, harvesting knowledge to produce more new ideas and contribute back to community. The idea of participation refers to the action of taking part in activities and projects, and the act of sharing in the activities of a group. The process of participation fosters mutual learning. Participatory learning is a method for learning about and engaging with learners (Ameri-Golestan & Alhossaini, 2017). Referring to Paulo Freire researchers Rugut and Osman (2013) stated that education becomes a collective activity, a dialogue between participants rather than a 'top-down' one-way lecture from one person for the benefit of the other. Academic Achievement is the knowledge obtained or Skills developed in the school subjects usually designed by test scores or marks assign by the teacher (Good, 2009). In the present investigation, the achievement test is based on the lower order thinking objectives Remembering, Understanding and Applying as per the Revised Bloom's Taxonomy (Anderson & Krathwohl 2001).

Objective of the Study

The objective of the present study is

To test the effect of Participatory Learning to Lower Order Thinking of students at secondary school level.

Hypothesis of the Study

Participatory Learning is effective to Lower Order Thinking of students at secondary school level.

2. METHODOLOGY IN BRIEF

The study was designed as a Quasi- Experimental study, using the Pre-test-Post –test Non-equivalent Comparison Group Design. In the experimentation phase pre-test post-test non-equivalent group design was adopted to assess the effectiveness of Participatory learning. The random sample of 60 Secondary School students studying in IX standard of Kollam District, Kerala was categorized as one experimental group and one control group. The experimental group was treated with Participatory learning and control group with the prevailing activity-oriented modes of curriculum transaction. A test in Academic Achievement based on Lower Order Thinking was administered as pre-test post-test before and after the treatment of independent variables. The experiment was conducted during normal hours at the select institution. The scores synthesized through the pre-test and post-test were inquest quantitatively to ascertain the effectiveness of Participatory learning.

Major Tools used in the study

- Academic Achievement Test based on Lower Order Thinking (LOT)
- Lesson Templates based on Participatory Learning

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Statistical Techniques of the Study

- Inferential statistics like Independent sample t-test to determine the significance of the difference between the students' perception.
- Analysis of variance (ANOVA) to determine whether there is a significant difference between the experimental group and control group, Participatory Learning Program over prevailing activity oriented mode for the Communication Skill scores (Pre-test, Post-test and gain scores).
- Analysis of Covariance (ANCOVA) used to test the comparative effectiveness of the Participatory Learning Program over prevailing activity mode for Communication Skill post-test scores with pre-test scores as covariance.

3. ANALYSIS AND INTERPRETATION

Analysis of the collected Data to find out the Effectiveness of Participatory Learning on Lower Order Thinking (Remembering, Understanding, Applying)

Inferential Analysis

Test of significant difference between the Means of pre-test scores on Lower Order Learning Thinking [LOT] in the whole sample

Variable	Treatment Groups	N	Mean	S.D	t value	Level of Significance
LOT	Experimental	30	12.40	4.50		
	Control	30	10.86	5.63	1.16	Ns

ns- not significant

The t value obtained (t = 1.16, p>.05) for the Means of pre-test score of LOT of Experimental and Control are not significant since they are less than the table value (1.96) required for significance at .05 level. This reveals that there is no significant difference in the Means of the pre-test scores on Lower Order Thinking [LOT] of Experimental and Control groups

Comparison of mean Scores of Lower order Thinking [LOT] of Experimental and Control Group in the post test: whole Sample

Test of Significant Difference Between the Means of Post-test Scores on Lower Order Thinking [LOT] in the Whole Sample

Variable	Treatment Groups	N	Mean	S.D	t value	Level of Significance
LOT	Experimental	30	14.96	4.50		
	Control	30	12.30	4.99	2.17*	p<0.05

The t value obtained (t= 2.17, p<.0.05) for the Means of post-test scores of Experimental and Control are significant since it is greater than the table value (1.96) required for significance at .05 level. This reveals that there is significant difference in the Means of the post-test scores on Lower Order Thinking [LOT] of Experimental and Control groups. This leads to the inference that, after being subjected to intervention, there is significant difference in Lower Order Learning Thinking [LOT] between Experimental and Control groups. This clearly proved that the Experimental treatment using Participatory Learning was effective in fostering the Lower Order Thinking [LOT].

Comparison of Mean Gain scores of Lower Order Thinking [LOT] of Experimental and Control Group: whole Sample

Comparison of Gain scores of students in Experimental and Control group regarding Lower Order Thinking [LOT]

Variable	Treatment Groups	N	Mean	S.D	t value	Level of Significance	Effect Size	Cohen's category
LOT	Experimental	30	2.56	0.77				
	Control	30	1.43	0.97	4.99*	p<0.05	1.09	Large

The t value obtained (t= 4.99, **p<0.05**) for Means of gain score of LOT of Experimental and Control groups. This reveals that there is significant difference in the Means of gain scores of the post-test scores on Lower Order Thinking [LOT] of Experimental and Control groups. Cohen's d Effect size is calculated to test the performance of

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Experimental Group over Control Group. The calculated effect size obtained was 1.09 for LOT which is greater than 0.80, the limit set by Cohen's category was large. This means Participatory Learning had a large effect in fostering LOT when compared to Activity Based Instruction.

Comparison of Adjusted Post test of the Lower order Thinking [LOT] Scores of Experimental and Control Group: Whole Sample

Summary of One-Way Analysis of Variances of the pre-test and post-test scores on the and Lower Order Thinking [LOT]

Sample	Source of Variation	df	SSx	SSy	MSx(Vx)	MSy(Vy)	Fx	Fy
	Between Groups	1	35.26	106.66	35.26	106.66	1.35	4.71
LOT	Within Groups	58	1508.66	1313.26	26.01	22.64		
	Total	59	1543.93	1419.93				

The values of (Fx = 1.35 with df(1,58) are not significant at .05 level of significance since these values are less than the table value required. The values of (Fy = 4.71 with df (1, 58) are significant at .05 level of significance since these values are greater than the table value required. This shows that the mean score of LOT does not differ significantly among the two groups before the experiment and differ significantly among the two groups after the experiment.

Summary of Analysis of Co-Variances of the pre-test and post-test scores on the Lower Order Thinking [LOT]of Experimental and Control group: whole sample

Sample	Source of Variation	df	SSx	SSy	MSx(Vx)	MSy(Vy)	Fyx
	Between Groups	1	35.26	106.66	23.09	23.09	37.4
LOT	Within Groups	57	1508.66	1313.26	35.17	.617	
	Total	58	1543.93	1419.93			

From Table 4.39 it is observed that the Fyx ratio is significant for the Lower Thinking [LOT] for the total sample (Fyx=37.4, df(1,57), p<.05). There exists a significant difference in the mean score of Lower Order Thinking [LOT] of Experimental and Control group after the treatment.

Comparison of the scores on Lower Order Thinking [LOT] **of the Experimental groups and Control group using Adjusted Means**

The adjusted Means for the post-test scores of the students in the Experimental and Control groups were compared and the difference between adjusted 'y' means was tested for significance. The data for adjusted Means of post-test scores of students in the Experimental group are compared and given in the Table

Data for Adjusted Means of post test scores on Lower Order Thinking [LOT] of Experimental and Control group

Variable	Treatment Groups	n	Mx	My	Mxy	SEm	t value	Level of Significance
LOT	Experimental	30	12.40	14.96	14.26	.14	8.92*	p<.05
	Control	30	10.86	12.30	13.01	.14		

*significant at 0.05 level

The obtained t value 8.92 (p<0.05) reveals that there is significant difference in the adjusted means scores on Lower Order Thinking [LOT] of Experimental and Control group.

4. FINDINGS AND CONCLUSIONS

Effectiveness of Participatory Learning in Fostering Lower Order Thinking [LOT]

Findings reveals that there were significant differences between the mean post test scores of Experimental and Control group with respect to the Lower Order Thinking [LOT]. The mean post test scores of Experimental group were significantly higher than that of the mean pre-test scores of the Control group. This clearly proved that the Experimental treatment using Participatory Learning was effective in fostering the Lower Order Thinking [LOT] (Remembering, Understanding and Applying). Hence the hypothesis is substantiated.

Educational Implications of the Study

Participatory learning engages students as active participants in the full life cycle of learning process. Students be able to observe or read everything their peers do, so they can learn further from others' effort. As the participatory learning

is self-directed, self-paced, and interactive, it will stimulate student interest in learning. The study results would be helpful for the teachers to select appropriate instructional modes for better teaching learning outcomes.

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