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Impact of Participatory Learning Program on Students' Critical Thinking Skills at Secondary School Level

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Abstract: ***The main objective of the present study was to find out the impact of participatory learning program on students' critical thinking skills at secondary school level. The present investigation was a quasi experimental approach with pre-test post-test non equivalent comparison group design. Sample comprised of 60 secondary school students studying in standard 1X. Instructional materials based on participatory learning program and Critical Thinking Skill inventory for secondary school students 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 Critical Thinking among secondary school students.***

Keywords: Participatory learning Program, Critical Thinking Skills

I. INTRODUCTION

Participatory learning implies attention should be paid to the interaction between teachers and students in the learning process. Participatory learning is the most effective means of fostering intrinsic motivation, intelligence, the disposition for social cooperation, and an appreciation of aesthetic experience, and for helping students develop the habits of mind necessary to continually reconstruct their understanding and to direct the course of subsequent experience. In participatory learning the learner shall be placed at the focus of all the decisions that are made about the curriculum and how it will be delivered. The teacher shall become a facilitator, motivator, and a promoter of learning during the classroom interaction. Participatory Learning is a self-directed learning and uses on problem-solving style and learner engages in learning community. 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. Learners do not enter into the process of learning by memorizing facts, but by "constructing their reality in engaging, dialoguing, and problem solving with others." The same appliance to development of Participatory Learning Program. Participatory learning program is a set of participatory learning techniques in which the learner is the active participant in the learning situation. In the context of the present investigation, Participatory Learning Program is a set of structured and organized instructional practices and learning techniques proceeds through the phases of Sensitization, Conceptualization and Application. Participatory learning methods are based on experiential learning that allows the young people feel, thing and out of their comfort zone in order to challenge sterio types and become actively involved in their personal growth whilst developing key life skills. Critical thinking is an ability to analyze information and experiences in an objective manner. If we want to develop our critical thinking skills we should be ready to ask questions and be willing to wonder. The world is much more complex than it was fifty year ago. Think of all the information you can receive from so many different sources. We cannot close our mind to the world around us. But we have to discern between what is important and what is not. Critical thinking help us to become careful and responsible thinkers who make good decision and solve problems. Critical thinking helps us to decide after rationalizing on things.

A. Objective of the Study

The objective of the present study is

To test the impact of Participatory Learning Program on Students' Critical Thinking Skills at Secondary School Level

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B. Hypothesis of the Study

Participatory Learning Program has a positive impact on Students' Critical Thinking Skills at Secondary School Level

II. METHODOLOGY IN BRIEF

The current study compared the influence of Participatory Learning Program and prevailing activity oriented mode on Critical Thinking of Secondary School students, hence used an experimental approach. The study tests the Critical Thinking scores of the treatment group and control group. For the purpose of the present study, the pretest - posttest Non-equivalent Groups Design were adopted.

A. Sample

The present investigation 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 influence of Participatory Learning Program. The random sample of 60 Secondary School students of Kollam District, Kerala was categorized as one experimental group and one control group.

B. Major Tools used in the study

1) Critical Thinking Inventory for Secondary School students
2) Instructional Materials based on Participatory Learning Program for Secondary School Students.

C. Statistical techniques of the study

1) Inferential statistics like Independent sample t-test to determine the significance of the difference between the students' perception.
2) 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 Critical Thinking scores (Pre-test, Post-test and gain scores).
3) Analysis of Covariance (ANCOVA) used to test the comparative effectiveness of the Participatory Learning Program over prevailing activity mode for Critical Thinking post-test scores with pre-test scores as covariance.

III. ANALYSIS AND INTERPRETATION

1) Results of Test of Significance of Difference between the mean Pretest scores of Experimental and Control group with respect to Critical Thinking

Variable	Group	Size	Mean	SD	t value	P
Critical Thinking	Experimental	30	42.40	5.59	.684	p> .05
	Control	30	43.60	5.34		

From the table t, for df (1,58), t0.05 = 2.001.Table shows that the t- value obtained for Critical Thinking was not significant even at 0.05 level. Hence, there were no significant difference between the mean pre-test scores of Experimental and Control groups with respect to Critical Thinking. This indicated that the pre-Experimental status of the students in the Experimental and Control groups were the same with respect to Critical Thinking.

2) Results of Test of Significance of Difference between the mean Post test scores of Experimental and Control group with respect to Critical Thinking

Variable	Group	Size	Mean	SD	t value	P
Critical Thinking	Experimental	30	53.63	2.76	2.35	P<.05
	Control	30	51.23	4.85		

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From the table t, for df (1,58), t0.05 = 2.001.Table shows that the t- value obtained for Critical Thinking was significant at 0.05 level. The mean post test scores of Experimental group were significantly higher than that of the mean post-test scores of the Control group.

3) Results of Test of Significance of Difference in Mean Gain Scores of Experimental and Control Group with Respect to Critical Thinking

Variable	Group	Size	Mean	SD	t value	P
Critical Thinking	Experimental	30	11.23	5.91	2.24	P<.05
	Control	30	7.86	5.70		

From the table t, for df (1,58), t0.05 = 2.001.Table shows that the t – value obtained for Critical Thinking was significant at 0.05 level. Hence there were significant differences in the mean gain scores of the Experimental and Control groups with respect to Critical Thinking skill. The mean gain scores of Experimental group were significantly greater than the mean gain scores of Control group with respect to Critical Thinking. This clearly proved that participatory learning program based instruction was more effective to promote Critical Thinking among secondary school students.

4) Summary of Analysis of Variance (ANOVA) of Pre test (x) and Post test (y) scores in Experimental and Control groups with respect to Critical Thinking

Variable	Source of Variation	df	SSx	SSy	MSx (Vx)	MSy (Vy)	Fx	Fy
Critical Thinking	Between Groups	1	14.017	86.40	14.017	86.40	.468	5.54
	Within Groups	58	1738.167	904.33	29.968	15.59		
	Total	59	1752.183	990.733				

From the table of F, for df (1/58), F0.05 = 4.006

Table shows the Fx and Fy values obtained for Critical Thinking, the Fx value was less than the table value and hence were not significant at 0.05 level. This indicated that there was no significant difference between pre-test scores of the Critical Thinking Skill of Secondary School Students in the Experimental and Control groups. The Fy value obtained was greater than the table value and hence was significant at 0.05 level. The significant Fy value indicated that the Experimental and Control groups differ significantly in the post test scores. For correcting the post test(y) scores for the difference in the pre-test(x) scores, the adjusted sum of squares and mean square variances for post test scores were computed and F-ratio was calculated. Hence ANCOVA was adopted and its summary is shown in the Table.

5) Summary of Analysis of Covariance (ANCOVA) of pre-test (x) and Post test (y) Scores in Experimental and Control Groups with Respect to Critical Thinking

Variable	Source of Variation	df	SSx	SSy	MSx (Vx)	MSy (Vy)	Fyx
Critical Thinking	Between Groups	1	14.017	86.40	99.868	99.868	6.803
	Within Groups	57	1738.167	904.33	836.713	14.679	
	Total	58	1752.183	990.733			

All Fyx values were significant at 0.05 level.From the table of F, for df (1/57), F0.05= 4.009.Table shows that the Fyx value obtained was greater than the table value and hence was significant at 0.05 level. The Fyx value for the adjusted post test score showed that the final scores of the Experimental and Control groups differ significantly. The adjusted means for the post test scores of the students in the Experimental and Control groups were computed using correlation.

6) Adjusted Means for the post test scores of students in the Experimental and Control group with respect to Critical Thinking

Variable	Groups	N	Mx	My	Mxy	SEm	t value	Level of Significance
Critical Thinking	Experimental	30	42.40	53.633	53.729	.701	3.69	p<0.05
	Control	30	43.60	51.233	51.138	.701		

The t value was significant at 0.05 level, From the table of t, for df (1/57), $t_{0.05} = 2.003$

Table shows that all the t-value obtained for Adjusted Means for the post test scores of students in the Experimental and Control groups were significant at 0.05 level. As the adjusted mean scores of the Experimental group were significantly higher than that of the Control group, Critical Thinking Skills of the Experimental group were better than that of the Control group. Thus, it was concluded that Participatory Learning Program was more effective than Activity Based Instruction in promoting the Critical Thinking Skills among Secondary School Students.

IV. FINDINGS AND CONCLUSIONS

The major findings that have emerged from the study are listed below

The t- value obtained for the means of pre-test scores of Critical Thinking was 0.684 and the value was not significant even at 0.05 level. Hence, there was no significant difference between the mean pre-test scores of Experimental and Control group with respect to Critical Thinking Skills. This indicated that the pre-Experimental status of the students in the Experimental and Control groups were the same with respect to the Critical Thinking Skills. The t- value obtained for the means of post test score of Critical Thinking was2.35 and the value was significant at 0.05 level. Hence, there were significant differences between the mean post test scores of Experimental and Control group with respect to Critical Thinking Skills. 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 Program was effective in promoting Critical Thinking among Secondary School Students.

The t – value obtained for the mean gain scores for Critical Thinking was 2.24 and the value was significant at 0.05 level. Hence there were significant differences in the mean gain scores of the Experimental and Control group with respect to Critical Thinking. The mean gain scores of Experimental group (CT=11.23) was significantly greater than the mean gain scores of Control group (CT=7.86), this clearly proved that Participatory Learning Program was more effective for promoting Critical Thinking among Secondary School Students. From the analysis using ANOVA, the F_x value for Critical Thinking was 0.468 Since it is less than the table value required, Fx value is not significant at 0.05 level of significance. This reveals that there is no significant difference between the pre test scores on Critical Thinking of the students in Experimental and Control group. The F_y value for Critical Thinking was5.54 and the value was significant at 0.05 level. The significant F_y value indicated that the Experimental and Control groups differ significantly in the post test scores with respect to Critical Thinking

Since the sample selected for the present study was intact classroom groups, it cannot be conclusively said that these groups differed significantly by merely comparing the post-test scores or gain scores of Experimental and Control group. So, when the post-test scores of the Experimental and Control group were compared using ANCOVA, the F_{yx} values for Critical Thinking was 6.80 The significant ratio shows that the mean post test score of Critical Thinking of Experimental and Control group differ significantly after they were adjusted for the difference in the pre-test scores. The difference in the adjusted means for post-test score of Critical Thinking of Experimental and Control group were tested for significance and the following result was obtained. The t-value obtained was 3.69 for Adjusted Means for the post test scores of students in the Experimental and Control groups with respect to Critical Thinking which was significant at 0.05 level. This reveals that there is significant difference in the adjusted means scores on Critical Thinking Skills of Experimental and Control group. This leads to the conclusion that there exists a significant difference in Critical Thinking between Experimental and Control group. Participatory Learning Program has a significant impact on Critical Thinking among Students at Secondary School level.

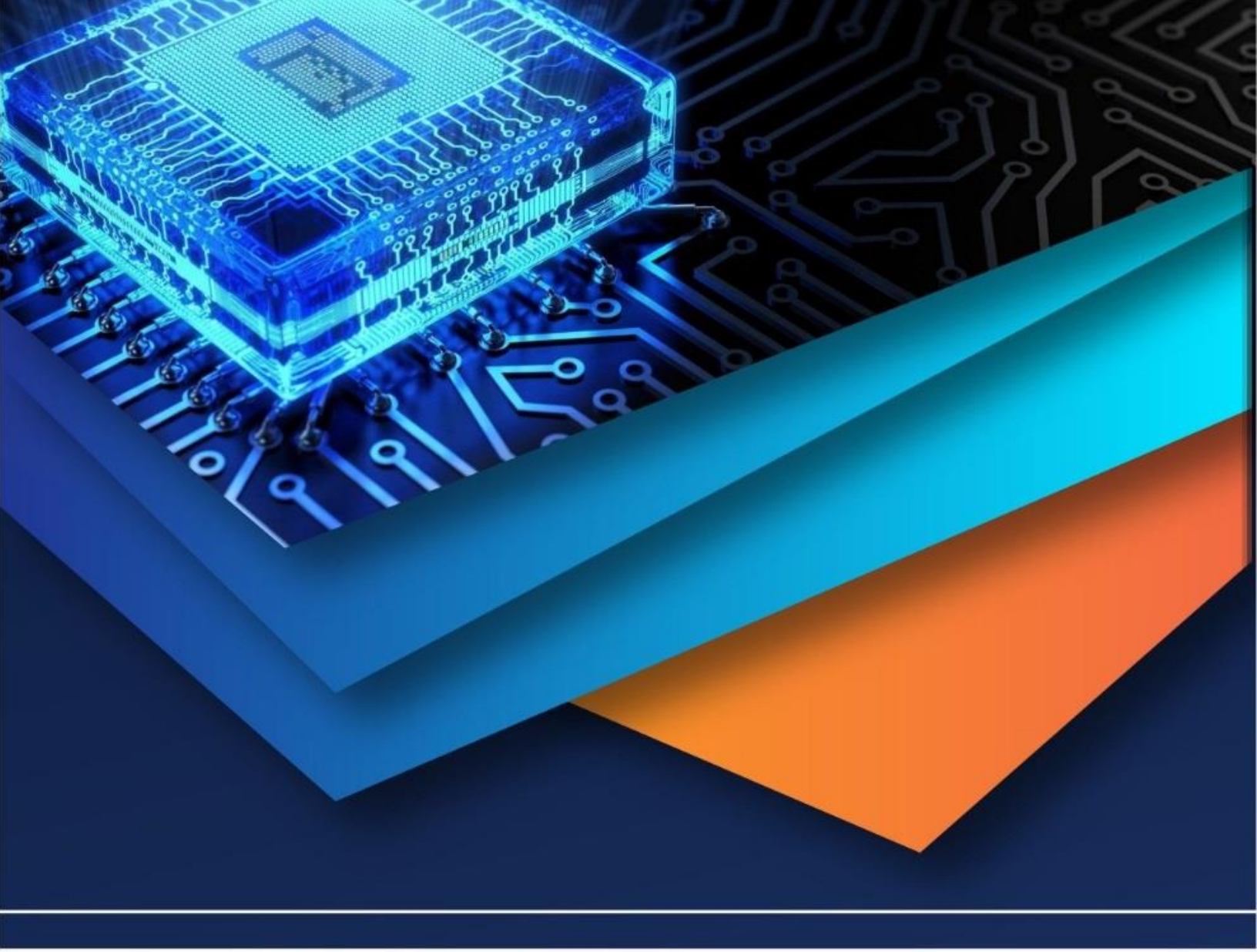
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