BOPPPS Model Based Instruction for Enhancing Decision Making among Secondary School Students

Dr. Sheenu G S*,   Prof. (Dr.) Issac Paul**

*Assistant Professor, Kerala University College of Teacher Education, Kollam, *India*. **Email. sheenugs.1976@gmail.com**
**Professor, GCTE ,Thycaud, Thiruvananthapuram, Kerala, India
 Email. chenal4u@gmail.com

ABSTRACT

The investigation aims to determine how BOPPPS Model based instruction enhance decision making skill among secondary school students. Using a pre-test post-test nonequivalent comparison group design, the current investigation was created as a quasi - experimental examination. Experimental and control groups were created from a random sample of sixty secondary school students in the Kollam district of Kerala. The control group received the activity oriented curricular transaction method, whereas the experimental group received BOPPPS Model based instruction. Prior to and following the intervention, a decision making inventory was given as pre-test and post-test. The study's findings indicate a substantial difference between the experimental and control groups' mean post-test scores in terms of decision making, with the experimental group's mean scores being considerably higher than the control group's. This proved that the experimental treatment which included a BOPPPS Model based instruction was successful in helping secondary school students to enhance their decision making abilities.

Keywords: BOPPPS Model, Decision Making

Introduction

Participatory learning refers to a set of teaching strategies in which learners are actively engaged and participate in learning situations under the guidance of the teacher. Participatory learning engages students as active participants in the full life cycle of learning process. It helps the learner to develop a sense of responsibility, working towards a common objective, collaborating, fostering dialogue, mutual appreciation, empowerment, and leadership. Participatory learning is the learning through actively engaging, participating, constructing knowledge, and participating with a learning experience through collaborative learning, co-learning and engagements. Participatory Learning describes the stance of an active, engaged learner within a responsive, flexible curriculum or learning context.   The aim of Participatory Learning is to provoke the thinking process, catalyzes consultation and promotes involvement in the issue or intervention. 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. Consequently, the investigator adopted one of the most widely used instructional design model to develop participatory learning program; the BOPPPS model. It is the most current, successful, dependable and established model for creating high quality learning. BOPPPS teaching model was first proposed by Douglas Kerr (1978) of University of British Columbia. BOPPPS is an acronym representing the various components of an active learning lesson plan: Bridge-in, Outcomes, Pre-assessment, Participatory Learning, Post assessment and Summary.

Decision making is an important skill at all stages in life. It involves logical steps in choosing the best alternatives based on a particular situation. Learners need to understand that there could be more than one right or wrong answer. The process of decision making involves the elements like identifying the problem, analyzing the problem, thinking of alternatives and deciding on a course of action. A decision represents a course of action chosen from a number of possible alternatives. Decision making is required in every activity. It is involved in a variety of situations and problems, from the very simple to very complex. Being safe to a large extent depends on how good we are at making prompt decisions. Right and sensible decisions should be taken regarding personal care products to keep ourselves safe. Decision making is required in every activity. It is required even in inculcating good eating habits among students.

Objective of the Study

The objective of the present study is

To test the influence of BOPPPS Model based instruction for enhancing Decision

Making among Secondary School Students

Hypothesis of the Study

Hypothesis of the present study is

BOPPPS Model based instruction is effective in enhancing Decision Making among Secondary School Students

Methodology in Brief

The current study compared the influence of BOPPPS Model based instruction and prevailing activity oriented mode in enhancing Decision Making of Secondary School students, hence used an experimental approach. The study tests the enhancement of Decision Making scores of the treatment group and control groups. For the purpose of the present study, the pretest - posttest Non-equivalent Groups Design were adopted.

Sample

The present investigation was designed as a Quasi- Experimental study, using the Pretest-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 BOPPPS Model. A random sample of 60 Secondary School students of Kollam District, Kerala was categorized as one experimental group and one control group.

Major Tools used in the study

 1 Decision making   Inventory for Secondary School students.

2. Instructional Materials based on BOPPPS model for Secondary School Students.

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 groups, BOPPPS Model based instruction over prevailing activity oriented mode for the Decision Making scores (Pre-test, Post-test and gain scores).

Analysis of Covariance (ANCOVA) used to test the comparative effectiveness of the BOPPPS Model based instruction over prevailing activity mode for Decision Making post-test scores with pre-test scores as covariance.

Analysis and Interpretation

Results of Test of Significance of Difference between the mean Pretest scores of

Experimental and Control group with respect to Decision Making

Variable	Group	Size	Mean	SD	T value	P
Decision Making	Control	30	36.63	5.16		
	Experimental	30	37.03	3.42	0.354	P>0.05

 From the table t, for df (1,58), $t_{0.05}$ = **2.001**

Table shows that the t- value obtained for Decision making 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 Decision making. This indicated that the pre-Experimental status of the students in the Experimental and Control groups were the same with respect to Decision making skill.

Results of Test of Significance of Difference between the mean Post test scores of

Experimental and Control group with respect to Decision Making

Variable	Group	Size	Mean	SD	T value	P
Decision Making	Experimental	30	46.60	1.75	5.40	P<.05
	Control	30	40.63	5.70		

Table shows that t value obtained for Decision making was significant at 0.05 level. The mean post test scores of the Experimental group were significantly higher than that of the mean post-test scores of the Control group. This clearly proved that the Experimental treatment using BOPPPS Model based instruction was effective in enhancing Decision making among secondary school students.

Results of Test of Significance of Difference in Mean Gain Scores of Experimental and Control Group with Respect to Decision Making

Variable	Group	Size	Mean	SD	T value	P
Decision Making	Experimental	30	9.56	3.74	6.98	P<.05
	Control	30	4.0	2.31		

Table shows that t-value obtained for Decision making 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 Decision making skill. The mean gain scores of the Experimental group were significantly greater than the mean gain scores of the Control group with respect to Decision making. This clearly proved that BOPPPS Model based instruction was more effective for enhancing Decision making among secondary school students. By using single factor ANCOVA, the investigator studied the relative effectiveness of BOPPPS Model based instruction and Activity Based Instruction in enhancing Decision making. Before proceeding to Analysis of Covariance (ANCOVA), the scores were subjected to Analysis of Variance (ANOVA).

Summary of Analysis of Variance (ANOVA) of Pre test (x) and Post test (y) scores in

Experimental and Control groups with respect to Decision Making

Components of Life Skills	Source of Variation	df	SSx	SSy	MSx (Vx)	MSy (Vy)	Fx	Fy
Decision Making	Between Groups	1	2.4	534.017	2.4	534.017	.125	29.95
	Within Groups	58	1113.933	1034.167	19.206	17.83		
	Total	59	1116.333	1568.183				

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

Table shows the Fx and Fy values obtained for Decision making, 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 Decision making Skill of Secondary School Students in the Experimental and Control groups. The Fy value obtained for Decision making 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 with respect to Decision making Skill. 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.

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

Components of Life Skills	Source of Variation	df	SSx	SSy	MSx (Vx)	MSy (Vy)	Fyx
Decision Making	Between Groups	1	2.4	534.017	483.259	483.259	58.541
	Within Groups	58	1113.933	1034.167	470.538	8.255	
	Total	59	1116.333	1568.183			

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 for Decision making Skill 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.

Adjusted Means for the post test scores of students in the Experimental and Control group with respect to Decision Making

Variable	Groups	N	Mx	My	Mxy	SEm	t value	Level of Significance
Decision Making	Experimental	30	37.03	46.600	46.458	.525	10.82	p<0.05
	Control	30	36.63	40.633	40.776	.525		

The t value was significant at 0.05 level, From the table of t, for df (1/57), t0.05 = 2.003.As the adjusted mean score of the Experimental group was significantly higher than that of the Control group, Decision making Skill of the Experimental group was better than that of the Control group. Thus, it was concluded that BOPPPS Model based instruction was more effective than Activity Based Instruction in enhancing Decision making Skill among Secondary School Students.

Findings and Conclusions

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

Effectiveness of BOPPPS Model based instruction in Enhancing Decision making among Secondary School Students

The t- value obtained for the means of pre-test scores of Decision Making was 0.354. The value was not significant even at 0.05 level. Hence, there were no significant difference between the mean pre-test scores of the Experimental and Control group with respect to Decision making. This indicated that the pre-Experimental status of the students in the Experimental and Control groups were the same with respect to Decision making. The t- value obtained for the means of post test scores of Decision Making was 5.40.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 Decision making. The mean post test scores of the Experimental group were significantly higher than that of the mean post-test scores of the Control group. This clearly proved that the Experimental treatment using BOPPPS Model based instruction was effective in enhancing Decision Making among Secondary School Students.

The t – value obtained for the mean gain scores for Decision Making was 6.98 and the value was significant at 0.05 level. Hence there was significant differences in the mean gain scores of the Experimental and Control group with respect to Decision making Skill. The mean gain score of Experimental group (Decision Making=9.56) was significantly greater than the mean gain score of Control group (Decision Making=4.0).This clearly proved that BOPPPS Model based instruction was more effective for enhancing Decision making Skill among Secondary School Students.

From the analysis using ANOVA, the Fx value for Decision Making was 0.125. 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 Decision making skill of the students in Experimental and Control group. The Fy value for Decision Making was 29.95. The value was significant at 0.05 level. The significant Fy value indicated that the Experimental and Control groups differ significantly in the post test scores with respect to Decision making Skill.

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 posttest scores of the Experimental and Control group were compared using ANCOVA, the Fyx values for Decision Making was 58.54. The significant ratio shows that the mean post test scores of Decision making Skill of Experimental and Control groups differ significantly after they were adjusted for the difference in the pre-test scores.

The difference in the adjusted means for post-test scores of Decision Making of Experimental and Control group were tested for significance and the t-value obtained was 10.82 for Adjusted Means for the post test scores of students in the Experimental and Control groups which was significant at 0.05 level. This reveals that there is significant difference in the adjusted means scores on the Decision making Skill of Experimental and Control group. This leads to the conclusion that there exists a significant difference in Decision Making Skill between Experimental and Control group. BOPPPS Model based instruction is significantly effective in enhancing Decision Making among Secondary School Students.

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