

An Investigation of Secondary School Level Students Questions Construction Skill

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Abstract

The purpose of this study was to investigate secondary school level students Questions Constructions Skill (QCS) so researcher adopted Leslie's (1997) categorization of basic types of questions; there are five basic types of questions; i. e. Factual, Convergent, Divergent, Evaluative and Combination. Sample (N=22) for the experiment were selected with Lottery method (F=11, M=11) from 10th Std. of one Marathi medium secondary school. Researcher had been collected pre and post test scores and collected data were interpreted with checklist prepared by teacher and analysed by one-way ANOVA. Both null hypotheses were tested at 0.05 levels; **H₀₁** is rejected because there is significant difference in the scores of pretest (QCSBT) and the F ratios for the various types of questions constructed by students after training (TQCSAT) which was post-test found no significant so **H₀₂** is accepted.

KEYWORDS: secondary school, students, questions construction skill

INTRODUCTION:

Question plays vital role in teaching-learning (Kerry, 2002) and Questioning is widely acknowledged as a valuable instructional strategy, knowing more about effective uses of questioning is important (Edwards & Bowman, 1996). A question is any sentence which has an interrogative form or function. In classroom settings, teacher questions are defined as instructional cues or stimuli that convey to students the content elements to be learned and directions for what they are to do and how they are to do it.

Child is the creator of knowledge (Piaget, 1970) and Cognitive domain of child help to student to construct the knowledge (Bloom, 1956) and the student arouses his interest in education at learning environment with asking and constructing the questions (Erickson, 2007). The art of constructing questions is one of the basic skills of good learning. Socrates, great philosopher and thinker, believed that knowledge and awareness were an intrinsic part of each learner. A teacher should create awareness amongst student to develop question with thinking. Through the art of thoughtful questioning teachers can extract not only factual information, but aid learners in: connecting concepts, making inferences, increasing awareness, encouraging creative and imaginative thought, aiding critical thinking processes, and generally helping learners explore deeper levels of knowing, thinking, and understanding (Leslie, 1997).

PURPOSE OF THE STUDY:

There was following purpose of investigating and conducting research:

Objectives of research:

1. To study the students Questions Construction Skill.
2. To study the students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination.

Hypotheses of research:

1. H_0 1: There would be no significant difference in the scores of pretest (QCSBT) of amongst students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination
2. H_0 2: There would be no significant difference in the scores of posttest (QCSAT) of amongst students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination

METHOD AND PROCEDURE:

The purpose of this study was to investigate secondary school level students Questions Constructions Skill (QCS) so researcher resolve to use experimental research method and selected single experimental group. Sample (N=22 included F=11, M=11) of this research is selected from 10th Std. of one Marathi medium secondary school with the help of lottery method.

Researcher has been pre and post test for data scores. On first day researcher told to students to prepare questions at home on first two lessons of Geography subjects from 10th Std. On second day researcher collected sheets of prepared/constructed questions sheets from students. On next day researcher gave one hours training to students about basic five types of questions with defining types of questions and example of related to Geography subjects content and discussion of questions preparing different types of questions. And on the training day researcher told to come on next day with preparation/construction of basic questions on next two lessons from geography subject. On last days the sheets of prepared questions collected.

Collected questions were interpreted and evaluated with the help of checklist prepared by researcher. And data were analysed by one-way ANOVA. Both null hypotheses were tested at 0.05 levels.

DATA ANALYSIS AND INTERPRETATIONS:

Researcher has been applied Analysis of Variance (ANOVA) to examine the hypotheses formulated for this study.

1. The profile of factors of Questions Constructed by Students before Training (QCSBT):

The profile of factors of Questions Constructed by Students before Training (QCSBT) based on the score in pre test has been presented in the following table.

The profile of factors of QCSBT

Sr. no	Types of questions	Mean (M)	Std Dev. (SD)
1	Factual (QCSBT1)	190.0	82.0
2	Convergent (QCSBT2)	110.0	48.0
3	Divergent (QCSBT3)	88.0	38.0
4	Evaluative (QCSBT4)	46.0	20.2
5	Combination (QCSBT5)	20.0	10.0

Table no: 1

The profile of factors of QCSBT

Table no.1 shows the mean score of QCSBT1 (Factual) is 190, QCSBT2 (Convergent) 110, QCSBT3 (Divergent) 88, QCSBT4 (Evaluative) 46, and QCSBT5 (Combination) 20. The SD of QCSBT1 (Factual) is 82, QCSBT2 (Convergent) 48, QCSBT3 (Divergent) 38, QCSBT4 (Evaluative) 20.2, and QCSBT5 (Combination) is 10. The mean value for QCSBT1 (Factual) is highest and QCSBT5 (Combination) is lowest in comparison of other factors.

The profile of factors of QCSBT is shown in the figure no: 1 given below

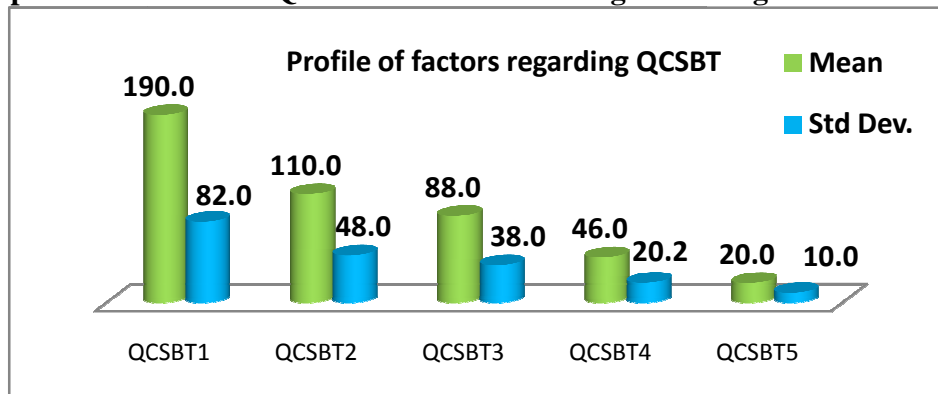


Figure no: 1

The profile of factors of QCSBT

For the verification of hypothesis given below (H_0 1) One Way ANOVA has been applied to the scores obtained from pretest which was held before the training.

H₀ 1: There would be no significant difference in the scores of pretest (QCSBT) of amongst students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination

The score of various factors of QCSBT with Female-Male students is compared by One –Way ANOVA to verify the above mentioned null hypothesis. The summary of One Way ANOVA is presented in the table no 2.

Summary of the One Way ANOVA applied for comparison of types of Questions (QCSBT)

Types of Questions	Source	Type III SS	Df	Mean Sq.	F	Prob.
Factual (QCSBT1)	Model	16.409	1	16.409	0.931	0.346
	Error	352.545	20	17.627		
	Total	368.955	21			
Convergent (QCSBT2)	Model	7.682	1	7.682	1.425	0.247
	Error	107.818	20	5.391		
	Total	115.500	21			
Divergent (QCSBT3)	Model	0.182	1	0.182	0.073	0.790
	Error	49.818	20	2.491		
	Total	50.000	21			
Evaluative (QCSBT4)	Model	0.182	1	0.182	0.056	0.816
	Error	65.091	20	3.255		
	Total	65.273	21			
Combination (QCSBT5)	Model	4.545	1	4.545	2.976	0.100
	Error	30.545	20	1.527		
	Total	35.091	21			
TQCSBT	Model	22.000	1	22.000	0.308**	0.585
	Error	1428.000	20	71.400		
	Total	1450.000	21			

* Significant at 0.05 level ** not significant at 0.05 level

Table No. 2

Summary of the One Way ANOVA applied for comparison of types of Questions (QCSBT)

The F ratio for the various types of questions constructed by female-male students before training given in the table no. 2 are not significant at 0.05 levels. Thus, the null hypothesis that there would be no significant difference in the score of pretest of students Questions Construction Skills as per types (Factors) of questions of TQCSBT i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination has been rejected.

2. The profile of factors of Questions Constructed by Students after Training (QCSAT):

The profile of factors of Questions Constructed by Students after Training (QCSAT)

Sr. no	Variables of QCSAT	Mean (M)	Std Dev. (SD)
1	QCSAT1	256	111.32
2	QCSAT2	152	66.65
3	QCSAT3	113	49.32
4	QCSAT4	78	34.99
5	QCSAT5	27	12.34
6	TQCSAT	628	274.03

Table no: 3

The profile of factors of QCSAT

Table no.3 shows the mean score of QCSAT1 (Factual) is 256, QCSAT2 (Convergent) 152, QCSAT3 (Divergent) 113, QCSAT4 (Evaluative) 78, and QCSAT5 (Combination) 27. The SD of QCSAT1 (Factual) is 111.32, QCSAT2 (Convergent) 66.65, QCSAT3 (Divergent) 49.32, QCSAT4 (Evaluative) 34.99, and QCSAT5 (Combination) is 12.34. The mean value for QCSAT1 (Factual) is highest and QCSAT5 (Combination) is lowest.

The profile of factors of QCSAT is shown in the figure no: 2 given below

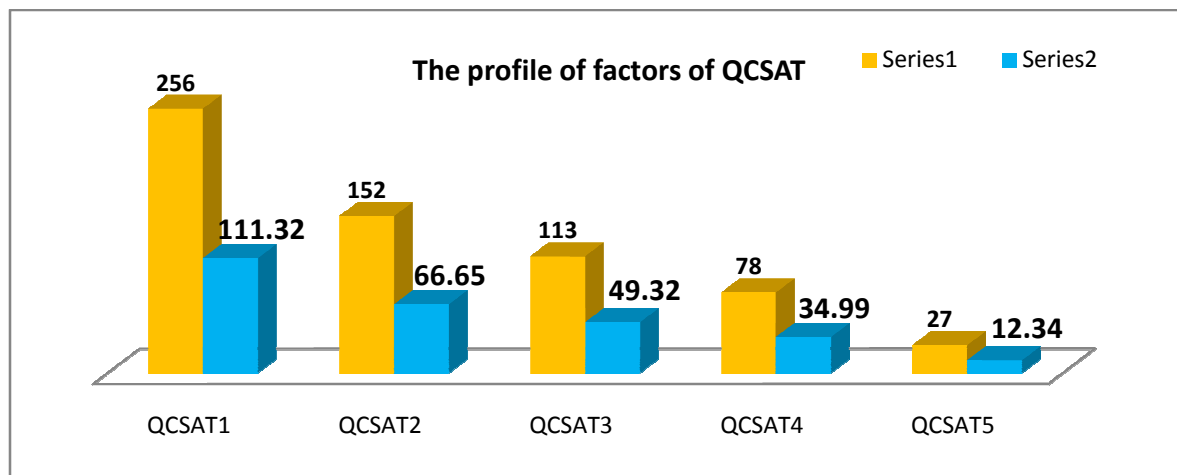


Figure no: 2

The profile of factors of QCSAT

For the verification of hypothesis given below (H₀ 2) One Way ANOVA has been applied to the scores obtained from pretest which was held before the training.

H₀ 2: There would be no significant difference in the scores of posttest (QCSAT) of amongst students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination

The score of various factors of QCSAT with Female-Male students is compared by One –Way ANOVA to verify the above mentioned null hypothesis. The summary of One Way ANOVA is presented in the table no. 4.

Summary of the One Way ANOVA applied for comparison of types of Questions (QCSAT)

Y Variable	Source	Type III SS	Df	Mean Sq.	F	Prob.
Factual (QCSAT1)	Model	7.682	1	7.682	0.402	0.533
	Error	381.818	20	19.091		
	Total	389.500	21			
Convergent (QCSAT2)	Model	13.136	1	13.136	4.849	0.040
	Error	54.182	20	2.709		
	Total	67.318	21			
Divergent (QCSAT3)	Model	4.545	1	4.545	2.688	0.117
	Error	33.818	20	1.691		
	Total	38.364	21			
Evaluative (QCSAT4)	Model	11.636	1	11.636	5.614	0.028
	Error	41.455	20	2.073		
	Total	53.091	21			
Combination (QCSAT5)	Model	2.227	1	2.227	1.571	0.225
	Error	28.364	20	1.418		
	Total	30.591	21			
TQCSAT	Model	180.409	1	180.409	3.579*	0.073
	Error	1008.182	20	50.409		
	Total	1188.591	21			

* Significant at 0.05 level ** not significant at 0.05 level

Table no: 4

Summary of the One Way ANOVA applied for comparison of types of Questions (QCSAT)

The F ratios for the various types of questions constructed by female-male students after training given in the table no. 4 are significant at 0.05 levels. Thus,

the null hypothesis that there would be no significant difference in the score of post-test of students Questions Construction Skills as per types (Factors) of questions (TQCSAT) i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination has been accepted.

3. The comparative analysis of profile of factors of QCSBT and QCSAT:

The comparative profile of factors of QCSBT and QCSAT

Sr. no	Source of Variable	Mean (M)	Std Dev. (SD)
1	TQCSBT	454	197.18
2	TQCSAT	628	274.03

Table no: 5

The comparative profile of factors of QCSBT and QCSAT

Table no. 5 shows that the mean score of QCSBT is 454 and QCSAT is 628. The SD of QCSBT is 197.18 and QCSAT is 274.03. The mean value and SD of QCSAT is highest and QCSBT is lowest.

The comparative profile of factors of QCSBT and QCSAT

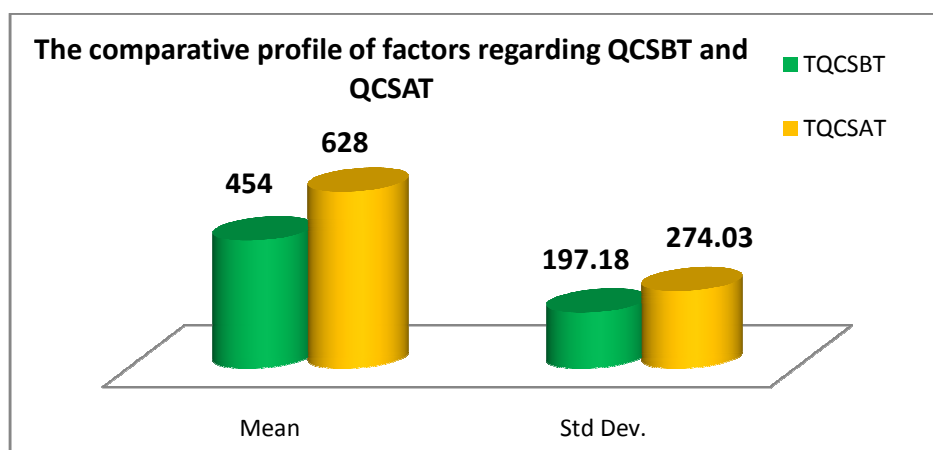


Figure no: 3

The comparative profile of factors of QCSBT and QCSAT

DISCUSSIONS AND CONCLUSIONS:

The researches (Bloom, B., 1956; Edwards, S., & Bowman, M., 1996; Erickson, H., 2007; Kerry, T., 2002) proved that in teaching-learning question has the much importance and now a day's questioning is widely acknowledged as a valuable instructional strategy in classroom to get and give knowledge with developing thinking skill of students so the prime purpose was of this research to investigate secondary school level students Questions Constructions Skill (QCS). And the results of this study also supports to Bloom's theory of Taxonomy of Educational Objectives. As per the Bloom's (1956) theory Cognitive domain of learner help to construct the knowledge and Erickson (2007) says this domain

arouses learner's interest in education at learning environment with asking and constructing the questions.

Conclusions of this research are as follows:

1. The significant difference in the score of pre-test of students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination was not found. Thus, before the training students were not able to construct questions of various types.
2. The significant difference in the score of post-test of students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination was found. Thus, the training was effective and it enabled the students to construct questions of various types.
3. The significant difference in the score of pretest of students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination was not found between male and female students. Thus, before the training both male and female students were not able to construct questions of various types.
4. The significant difference in the score of posttest of students Questions Construction Skills as per types (Factors) of questions i. e. 1) Factual 2) Convergent 3) Divergent 4) Evaluative 5) Combination was not found between male and female students. Thus, the training has no different effect on male and female students. The training has effect on the students without concern of gender.

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