



CONSTRUCTION AND STANDARDIZATION OF A TOOL TO MEASURE LEARNING INTEREST IN MATHEMATICS AMONG HIGH SCHOOL STUDENTS

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ABSTRACT

The present Study is an attempt to construct and standardize a tool for measuring the Learning interest in Mathematics of individual students in different dimensions which include interest in learning Mathematics, teacher related, students related, content related and society related in Mathematics. A pilot study among 100 students including 50 Male and 50 Female was conducted in Kancheepuram District. The reliability score was found to be 0.873 and content validity was established getting the opinions of the experts and scholars in the field of education. Percentile norms of the tool was also planned well to apprise the scores of Learning interest in Mathematics scale of students. The final tool contains 60 items including 40 positive items and 20 Negative items. The minimum score of the scale is 60 and maximum score is 300.

KEYWORDS : Learning interest in Mathematics- Lack of interest in learning Mathematics- Basic knowledge in Mathematics, High school students- Kancheepuram District.

1.0. INTRODUCTION

The cognitive ability alone does not guarantee success on academic achievement. There are several non – cognitive or affective factors, which contribute towards the academic performance of an individual. A proper and adequate interest is very much necessary for a fruitful learning of the child. The academic performance can be predicted by knowing the relationship of various factors with achievement.

Learning takes place effectively only when a congenial atmosphere is provided for children in classroom, school, home and society which are the parts of the learning interest. Achievement in high/higher secondary course is crucial for a learner as it determines his future career. All possible efforts should be made to establish an effective learning interest for high/ higher secondary students.

2.0. LEARNING MATHEMATICS AS A SUBJECT

The study of Mathematics requires specific ability, intelligence and interest in the subject, aptitude, attitude, creativity and independency.

3.0. DEVELOPMENT OF THE TOOL

Initially the learning interest in Mathematics scale consisted of 70 items with a five point rating scale viz., strongly agree, agree, undecided, disagree and strongly disagree. The tool viz., learning interest in Mathematics has four dimensions, namely teacher related, students related, content related and society related. The statements were selected on the basis of previous studies following various characteristics of high school students. These 70 items were classified under four - Dimensions and were given to experts for their opinions and comments which included 40 teachers of secondary schools in Kancheepuram District in the state of Tamilnadu.

In view of criticisms and comments provided by the experts and teachers, 10 items were deleted under various dimensions while some of the statements were either rewritten or modified. Thus sixty items were selected for the final tool and thus named Learning interest in Mathematics Scale.

3.1. ITEM ANALYSIS

The Learning interest in Mathematics scale thus developed was administered to 50 Male and 50 Female students randomly selected from 10 schools of Kancheepuram District. It was emphasized that no item should be omitted and there was nothing right or wrong about these questions. They were encouraged to answer each item according to their personal agreement or disagreement. They were

assured that their replies would be kept confidential. No time limit was assigned.

Out of 60 items 40 items were positively worded and 20 items were negatively worded. All the positive items were scored from 5 to 1 and negative items were scored from 1 to 5, depending upon the direction of the items. The sum of these values gave the learning Interest in Mathematics score of the students.

Item analysis was done. 27% of the subjects with the higher scores and 27% of the subjects with the lower scores served as criterion groups. Discrimination index for each item was then determined. 60 items including 40 positive statements and 20 negative statements with the discriminating value of 25 and above were finally selected for the questionnaire. The minimum score was 60 and the maximum score was 300 for the tool.

3.2. RESULTS

The Mean, Median and S.D. for the sample area given in following tables:

Table: 1 The distribution seems to be slightly positively skewed.

Mean	Median	S.D
283.49	277.54	9.27

Table: 2 Showing Skewness, Kurtosis and S.E (N=100)

Nature of Distribution	Value	S.E	Level of Significance
Skewness	0.85	0.154	NS
Kurtosis	0.407	0.681	NS

Since the S. E. of Skewness and kurtosis are less than ± 1.96 , at 5 % level of confidence, it is interpreted that the sample doesn't differ from normality.

3.3. RELIABILITY

The reliability of the scale was established by test – Re-test method. It is found to be 0.863 (N=100).

3.4. VALIDITY

Only highly discriminating items were included in the questionnaire following item analysis. The upper 27% and lower 27% served as the criterion groups (Kelli 1939). The face validity of the measures is very high. The content Validity was ensured as the items have 100 percent agreement amongst judges regarding their relevancy to their learning interest in Mathematics scale are included in the questionnaire.

To select the item for the final study the investigator analyzed the pilot study data into interest index. It may be recalled that each item in the learning interest in Mathematics scale is followed by five different responses such as "Strongly Agree", "Agree", and "Undecided", "disagree" and "strongly disagree". Based on the scoring key, weights were given to the responses category in respect of each item. Then each item was taken individually and the number of sample subjects who responded "Strongly Agree", "Agree", "Undecided", "Disagree" and "Strongly Disagree" was found out in both the high and low groups separately. A work sheet was prepared for each item for calculations of 't' values. Thus the 't' values for all the 60 items were calculated.

3.5. PERCENTILE NORMS

Table: 3 Showing percentile (N=100) for learning interest in Mathematics.

PERCENTILE	SCORE	CATEGORY IN LEARNING INTEREST IN MATHEMATICS
90	270	VERY GOOD
80	240	
75	225	GOOD
70	210	
60	180	AVERAGE
50	150	
40	120	
30	90	POOR
25	75	
20	60	VERY POOR
10	30	

LEARNING INTEREST IN MATHEMATICS SCALE

S. No	STATEMENTS	Strongly Agree	Agree	Un Decided	Disagree	Strongly Disagree
1.	I am interested to take the help of my Mathematics teacher when I don't understand certain concepts in Mathematics.					
2.	I move to bench edge unconsciously while Mathematics is taught in class.					
3.	I like to know the recent researches in Mathematics.					
4.	I like to know the latest Discoveries in Mathematics.					
5.	I like to use such sums to do with brain work.					
6.	I lose my mental peace when my Mathematics teacher starts teaching Mathematics.					
7.	I lose my interest in class when my Mathematics teacher finds a solution for a problem.					
8.	I am afraid of my Mathematics teacher.					
9.	I want to become a Mathematics teacher when I grow up.					
10.	I like only complicated problems being taught by my teacher in the class.					

11.	I am happy when my Mathematics teacher is absent for class.					
12.	I Focus my attention Mathematics class.					
13.	I want to do problems myself.					
14.	I want my teacher to find instant remedies for my doubts in Mathematics.					
15.	I like to take my Mathematics teacher as a role model.					
16.	I am interested to become a Best student in Mathematics.					
17.	I am not interested to participate in Mathematics related Quiz programme.					
18.	I am interested to know about various sub topics in Mathematics.					
19.	I am interested to go through various Mathematics formulae keeping them in writing.					
20.	I am interested to do research in Mathematics if an opportunity is given.					
21.	I am not interested to participate Mathematics related programmes in other schools also.					
22.	I am not interested to know about various inventions in Mathematics.					
23.	I am interested to read Mathematics puzzles from dailies.					
24.	I am not interested to know the role of Mathematics in daily life.					
25.	I am interested to know how Mathematics knowledge is used in industries.					
26.	I like to know the biography of Mathematicians.					
27.	I like to identify the Mathematical formulae.					
28.	I am interested to avoid mistakes while doing Exercise sums in Mathematics.					
29.	I like to know about the recent researches in Mathematics.					
30.	I am not interested in going to exhibition of Mathematics books.					
31.	Mathematics is my favorite subject.					
32.	I learn Mathematics with Interest.					
33.	I am not interested to know more information in Mathematics.					
34.	I am not interested to do submit exercise sums in Mathematics.					
35.	I am interested to know development of Mathematics through books in library.					

36.	I am interested to know the logic behind Mathematics formulae.					
37.	I am not interested to writing and reading the Mathematical symbols.					
38.	I am interested to draw the Mathematical diagrams.					
39.	I want to make perfection in drawing.					
40.	I want to draw diagrams with clarity.					
41.	I am not interested to know about more journals in Mathematics.					
42.	I am more interested in putting things on the wall related to Mathematical subject.					
43.	I am not interested to do small researches in my house related to Mathematics subject.					
44.	I like to know the contribution of technology to Mathematics.					
45.	I like to read the articles related to Mathematics subject.					
46.	I am interested to know the economically important theorems.					
47.	I am interested to know the Mathematics knowledge of rural students.					
48.	I dislike taking Mathematical practices from adult people.					
49.	I want to know the reasons for success of the successful men.					
50.	I dislike participating in the Mathematics related seminars.					
51.	I want to do the Mathematics home work without disturbing my parents.					
52.	My parents will not like me to opt Mathematics as a subject.					
53.	Many of my relatives are experts in the Mathematics.					
54.	My parents advice me to spend more time on learning Mathematics.					
55.	My parents expect me to score more marks in Mathematics.					
56.	My parents expect me to be an expert in Mathematics.					
57.	My parents will not like me to opt Mathematics in my higher studies.					
58.	My parents create an appropriate environment to study Mathematics.					
59.	My parents make my mathematics teacher responsible for my backwardness in Mathematics.					
60.	My parents encourage in the Mathematics allied activities.					

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