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Research Article

Improvement and consistency of realization investigation in mathematic for higher secondary students

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Abstract

The current schoolwork is an endeavour to increase and authenticate the Mathematics realization test for higher secondary school students in Vellur district. A various choice investigation of 100 substances from 11th standard Mathematics syllabus was selected with the help and advice of mathematics experts. The test was administrated to a sample of 100 students of 3 schools of Vellur district. Then all the administer investigation papers of 100 students were scored carefully, the investigation papers were in order in the descending order from the highest to the lowest score. Then the top 27% and bottom 27% of the total score has been taken for the item investigation. During expected technique of item investigation, complexity manifestation and discrimination manifestation were considered as well as the consistency and authenticity of the investigation as a complete. Consequently the tool is consistent and suitable for the illustration.

Keywords: Mathematics realization test, students.

1. Introduction

Mathematics is called the 'king of all sciences' as generally of the systematic inventions has been converted into suitable only through some Mathematical evidences. Realization in Mathematics is an significant in order to appreciate how civilization functions and for people proficient to implement their rights to independent contribution. Mathematics is important in our daily existence. Mathematics is fundamental for the subsistence and improvement of contemporary world. Mathematics has been called the caretaker to higher education [1]. One of the generally significant compensation to mathematics accomplishment difficult is the feedback and valuation of educational development. The information gathered from consideration results enables governing bodies to conclude areas of proficiency and gaps in student education in mathematic. Those students who are victorious in mathematics have more choices for areas of absorption in college, most important to a wider assortment of careers. Advanced levels of mathematics are essential for the types of jobs that are growing at the greatest velocity, separation smaller quantity opportunity for those individuals who are not capable in mathematics [2]. Consequently the realization in mathematics is very much need for higher secondary students and this tool attempts to determine it. With observance the above points in intelligence, the researcher endeavoured to increase and standardize a success Test in Mathematics for standard XI as no suitable test was available for the purpose.

The first step in the construction of an achievement test is the clear formulation of the objectives that are to be evaluated. The Instructional objectives of teaching Mathematics used in this research, are based on Bloom's Taxonomy endorsed by the National Curriculum Framework [3]. They are knowledge, understanding, application, and skills. Keeping in mind, the objectives and specifications intended to be measured by the test, the test, made up of 100 items, are drawn in the blue print (vide:table-1), Weightage to objectives (vide:table-2), weightage to content (vide:table-3), weightage to type of questions (vide:table-4) covering ten units based on the higher secondary school mathematics curriculum.

Table 1: Blue print

SI. No	Objectives / Content	Knowledge			Understanding			Application			Skill			Total
		O	SA	EA	O	SA	EA	O	SA	EA	O	SA	EA	
1.	Metrics and determinants	2(2)	-	-	3(3)	-	-	3(3)	-	-	2(2)	-	-	10
2.	Vector algebra	2(2)	-	-	3(3)	-	-	2(2)	-	-	3(3)	-	-	10
3.	Algebra	1(1)	-	-	3(3)	-	-	4(4)	-	-	2(2)	-	-	10
4.	Relation & order	3(3)	-	-	3(3)	-	-	2(2)	-	-	2(2)	-	-	10
5.	Analytical geometry	4(4)	-	-	2(2)	-	-	3(3)	-	-	1(1)	-	-	10
6.	Trigonometry	5(5)	-	-	2(2)	-	-	2(2)	-	-	1(1)	-	-	10
7.	Graph	1(1)	-	-	4(4)	-	-	3(3)	-	-	2(2)	-	-	10
8.	Differential	2(2)	-	-	1(1)	-	-	5(5)	-	-	2(2)	-	-	10
9.	Integration	1(1)	-	-	1(1)	-	-	4(4)	-	-	4(4)	-	-	10
10.	Probability	2(2)	-	-	2(2)	-	-	2(2)	-	-	4(4)	-	-	10
	Total	23	-	-	24	-	-	30	-	-	23	-	-	100

Table 2: Weightages in terms of objective

S. No	Objectives	Marks allotted	Percentage
1.	Knowledge	23	23%
2.	Understanding	24	24%
3.	Application	30	30%
4.	Skill	23	23%
Total		100	100%

Table 3: Weightages in terms of content

S. No	Substance	Marks allotted	Percentage
1.	Metric and determinants	10	10%
2.	Vector algebra	10	10%
3.	Algebra	10	10%
4.	Relations & order	10	10%
5.	Analytical geometry	10	10%
6.	Trigonometry	10	10%
7.	Graph	10	10%
8.	discrepancy	10	10%
9.	assimilation	10	10%
10.	Probability	10	10%
Total		100	100%

Table 4: Weightages in terms of forms of question

S. No	Forms of questions	Marks allotted	No. Of questions	Total marks
1.	Objective type	1	100	100%

2. Methodology

This realization investigation consists of 100 numerous preference questions with four educational exact objectives. Every accurate reaction of the question is given one mark and wrong answer is given zero. Total score is recorded by addition the correct responses. Following having constructed the realization test in mathematics the researcher administered it to a sample of 100 higher secondary school students studying in the schools of vellur district. The items are scored carefully and complexity manifestation and discrimination manifestation are calculated for item investigation. After discover out complexity and perceptive manifestation value, only those substance are having item complexity significance from 30% to 90% and discriminating manifestation values from 0.30 to 0.70 only selected. Completely 60 items are ultimately particular (vide: table-5). The concluding implement consists of 60 numerous preference questions with four options and a maximum of 60 marks and minimum of 0.

Table 5: Indices of Item Difficulty and Discrimination for selection of items

Item No.	Index of Difficulty (%)	Index of Discrimination	Item Selected
1	68.51	0.48	S
2	75.93	0.33	S
3	83.33	0.33	S
4	75.92	0.48	S
5	31.48	0.26	NS
6	22.22	-0.07	NS
7	59.25	0.67	S
8	53.70	0.26	NS
9	40.74	0.37	S
10	75.92	0.19	NS
11	64.81	0.70	S
12	42.59	0.33	S
13	75.22	0.26	NS
14	53.70	0.48	S
15	64.81	0.62	S
16	40.74	-0.074	NS
17	72.22	0.48	S
18	66.67	0.51	S
19	44.44	0.22	NS
20	55.56	0.51	S
21	35.18	0.04	NS
22	70.37	0.37	S
23	55.55	0.59	S
24	22.22	-0.07	NS
25	57.40	0.48	S
26	51.85	0.22	NS
27	51.85	0.44	S
28	55.56	0.66	S
29	81.48	0.29	NS
30	44.44	0.15	NS
31	62.96	0.66	S
32	38.89	0.19	NS
33	79.63	0.33	S
34	77.78	0.29	NS
35	57.40	0.70	S
36	81.48	0.29	NS
37	53.70	0.63	S
38	75.92	0.48	S
39	64.81	0.70	S
40	48.15	0.22	NS
41	64.81	0.63	S
42	85.18	0.29	NS
43	57.41	0.85	S
44	57.41	0.55	S
45	75.92	0.25	NS
46	50.00	0.62	S
47	70.37	0.22	NS
48	48.14	0.66	S
49	38.89	-0.04	NS
50	50.00	0.78	S
51	70.37	0.52	S
52	62.96	0.59	S
53	70.37	0.22	NS
54	70.37	0.37	S
55	37.03	0.07	NS

Table 5 Continue.....

56	35.19	0.19	NS
57	57.41	0.48	S
58	35.19	0.41	S
59	40.74	0.22	NS
60	31.48	0.037	NS
61	51.85	0.37	S
62	62.96	0.52	S
63	44.44	0.52	S
64	44.44	0.52	S
65	53.70	0.55	S
66	44.44	0.07	NS
67	64.81	0.33	S
68	70.37	0.29	NS
69	77.78	0.07	NS
70	20.37	0.33	NS
71	42.59	0.41	S
72	48.14	0.74	S
73	57.41	0.63	S
74	16.66	-0.11	NS
75	62.96	0.44	S
76	50.00	0.78	S
77	42.59	0.41	S
78	62.96	0.29	NS
79	57.41	0.63	S
80	27.77	-0.11	NS
81	24.07	0.19	NS
82	42.59	0.56	S
83	37.03	0.44	S
84	42.59	0.56	S
85	33.33	0.29	NS
86	35.18	0.48	S
87	35.19	0.56	S
88	31.48	0.48	S
89	53.70	0.55	S
90	33.33	0.29	NS
91	51.85	0.52	S
92	27.78	0.25	NS
93	46.29	0.41	S
94	70.37	0.15	NS
95	87.40	0.63	S
96	31.48	0.03	NS
97	31.48	0.33	S
98	57.41	0.25	NS
99	38.89	0.78	S
100	25.92	0.29	NS

Note: S – Items Selected
NS – Items Not Selected

3. Validity and reliability of the test

In the establishment of the progression of tool manufacture the certain several selection questions were certain to experts on Mathematics and difficult for their authorization. They contracted that the substance in the test are significant and valuable for collecting the data from the example and thereby the comfortable authority was ensured. Consistency refers to the correctness (consistency) of dimension by the test. In this study reliability was establish to be 0.82 by using a split-half technique followed by using of spearman-brown prophecy formula (co-efficient of inside reliability). Accordingly the mathematics realization investigation has validity and reliability.

4. Conclusion

These realize will be of enormous implementing for measuring the higher secondary students' realization in mathematics and several other schools appearance other districts.

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