

‘Construction and standardization of stream selection test’ empowering learners to choose suitable stream

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ABSTRACT

Standardization is an agreement about the process of the test administration. It ensures that the assessment is conducted under specific conditions which can be repeated. A standardized test provides confidence about repeating the test in the future and ensures that all candidates are treated in the same way. It is also important because it ensures objectivity of scoring and administration conditions. It is utmost important to check the accuracy and precision of the measurement procedure as well as the extent to which the test measures what it tends to measure. The present study aims at standardization of Streampick. The test was administered on a sample of 5820 students. It was found that Streampick is valid and reliable. It can empower the learners to know about the most suitable stream they can opt for the best results.

Keywords: *Stream, Reliable, Valid, Standardization, Streampick*

Selection of the right stream is crucial as it shall drive rest of their life. Furthermore, it will have a direct impact on other aspects of their life such as life style, self-satisfaction, work-life balance and quality of life. Choosing a stream is difficult not just because of the range of career options available to an individual in the current environment, but also having an inadequate understanding of streams. It is inevitable to have an unclear perception regarding different streams at this crucial stage. This process involves evaluating individual’s abilities, skills and values. Cicchetti et al. (1994) believe that the stream selection is the decision in the individual’s life that is influenced by multiple factors which includes cultural values, family background, personal attitude and career expectations and many more. Career choice is very multifaceted and complex. Furthermore Baumert et al. (2009) endorse that it is hard to understand and predict if there are number of factors that influence it in different ways. Viteles and Brief (1932) argue that the main drives in the decision were their parents, relatives and friends. Interpersonal factors include influence of family and other social and significant groups. Helmstadter (1964) ascertains that the selection of stream is also being influenced by the market economy. Van der Linden et al. (1986) corroborate that decisions regarding appropriate stream and subjects require significant thought and preparation.

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Gordon and Mettelman (1988) explained that career maturity, career decidedness, decision status, career planning and career expectations have been explored as different aspects of career decision making. According to Hopkins (1998), parents have consistently been reported as the main source of information by students. In addition, educational institutions, part-time work, peers, mass media, have been identified as sources of information about careers for adolescents. Career planning though important is seen to be lacking in adolescents. As per Wilhoit and McCallum (2002), in their academic life, students are required to choose the broad stream of study they wish to pursue. This choice is determined by many factors like academic performance, family attitude. This decision making is a vital developmental task in adolescence. Selection of subjects is a critical component of career planning. Landis (2003) believes that students are required to make goals regarding qualifications and career path choices at the end of high school i.e. tenth grade and narrow down their choice by the twelfth standard. Ungerleider (2003) says that students are also expected to be aware of career options at this stage. Fonseca et al. (2008) believe that after passing 10th standard, there starts a period of transition and stress for most students as they are supposed to choose and make tentative decisions regarding their future career. Tellege and Waller (2008) view that the stream selection systems should fit the needs of the students. Fischer and Milfont (2010) and Dobrow and Tosti-Kharas (2011) also confirm the same. According to Hays (2014), Nijs et al. (2014) and Kline (2015), career needs are defined as the personal needs of goals, tasks and challenges in a person's career at various career stages. As per Miller and Lovler (2018), career goal may be a particular landmark to be achieved during a career, which provides a person with the necessary direction and motivation. It enables an individual to structure and set goals to take action based upon the same. No doubt, in today's society stream is a sign of status. However, it is important to choose the stream and career according to their best ability.

METHODOLOGY

The test was administered on a sample of 5820 students further categorized into two broad groups. Random sampling procedure was followed to select the subjects from different cities. 805 students were pursuing 9th / 10th class whereas 5015 were studying in different streams of 11th and 12th standards. StreamPik is a recommended slot but non time bound assessment. It is a cognitive and mental ability test besides having a section designed to assess the natural learning styles of the candidates. Based on total of 5820 students, the data were analyzed. In the present test, objective types of questions were constructed to serve the purpose. A pool of test items was prepared. Pilot study was conducted to find out gross defects on items, to be acquainted with the administration of the test and to see whether instructions are self-explanatory or not. Further it was to be established whether the candidates have any problems to understand the instructions properly or not. It was also important to determine the approximate time limit and to judge responses of various items in order to understand the reactions of the student on the items. The test consists of two parts Part A which contains 100 Objective Test questions, and Part B consists of a self-assessment Paper which includes 8 forms to be filled in by the student. Test results include current cognitive capacity measure, dynamic IQ, Focus Factor, Decision Making Ability, Estimation Level, Natural Learning Style and recommendation of the most suitable stream. Participants were allowed to choose from online and offline mode of assessment.

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RESULTS AND DISCUSSION

Data were collected, analyzed and it was summarized in the form of component wise distribution which is shown in table 1. The component wise analysis was based upon the revised blooms taxonomy.

Table 1: Component wise distribution based onrevised Bloom's Taxonomy by Lorin Anderson

S. No.	Major Component	No. of items
1	Remembering	31
2	Understanding	5
3	Applying	20
4	Analyzing	14
5	Evaluating	18
6	Creating	12
	TOTAL	100

Later, the distribution of the discriminating values was found in terms of the frequency of the items of the test, as depicted in table 2.

Table 2: Distribution of the discriminating values

Discriminating Values	Frequency
.80-.89	2
.70-.79	10
.60-.69	11
.50-.59	19
.40-.49	36
.30-.39	16
.20-.29	6
TOTAL	100

The difficulty value of each item was calculated and has been explained in table 3. It is very important to evaluate the difficulty level of all the test items so as to ensure the appropriateness and acceptability of each test item.

Table 3: Difficulty Value of the items

Item No.	Difficulty Value						
1	0.6	26	0.68	51	0.29	76	0.62
2	0.57	27	0.51	52	0.56	77	0.49
3	0.36	28	0.61	53	0.56	78	0.35
4	0.74	29	0.31	54	0.61	79	0.44
5	0.65	30	0.74	55	0.66	80	0.81
6	0.41	31	0.51	56	0.54	81	0.78
7	0.41	32	0.45	57	0.67	82	0.44
8	0.35	33	0.6	58	0.77	83	0.68
9	0.54	34	0.75	59	0.62	84	0.42
10	0.46	35	0.72	60	0.6	85	0.49
11	0.36	36	0.74	61	0.46	86	0.29
12	0.59	37	0.45	62	0.79	87	0.31
13	0.8	38	0.33	63	0.3	88	0.63

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Item No.	Difficulty Value						
14	0.69	39	0.8	64	0.43	89	0.59
15	0.67	40	0.46	65	0.53	90	0.45
16	0.67	41	0.45	66	0.74	91	0.77
17	0.38	42	0.78	67	0.44	92	0.73
18	0.72	43	0.42	68	0.29	93	0.47
19	0.31	44	0.59	69	0.53	94	0.45
20	0.69	45	0.8	70	0.57	95	0.55
21	0.54	46	0.32	71	0.46	96	0.38
22	0.78	47	0.65	72	0.62	97	0.61
23	0.39	48	0.5	73	0.45	98	0.66
24	0.3	49	0.35	74	0.63	99	0.43
25	0.39	50	0.25	75	0.79	100	0.29

Validity

The validity of a test is defined as the accuracy with which it measures that which it is intended to measure. Besides, it is necessary to know how of what is intended, is measured as well as to be sure that nothing else is measured. Construct Validity is concerned with what qualities a test measures and is evaluated by demonstrating that certain explanatory constructs account to some degree for performance on the test. In the present research study, the construct validity was estimated. There are different methods for examining construct validity. In the present study Cliff's Consistency Indices 'C' was calculated.

Table 4: Validity of the test

Grade	Cliff's Consistency 'C'
9 th -10 th	0.63
11 th -12 th	0.43

As per criteria, if the value of 'C' is 0.32 or above it, then the test is treated as valid. The internal consistency of the test while administered on both the groups confirmed the validity of Streampik.

Reliability

The Reliability of the test in question was found by the following methods:

The Test-Retest Method: The present test was administered to the subjects after a period of 1 month. Two sets of scores were worked out and then coefficient of correlation was computed by using SPSS (Statistical Package for the Social Sciences) software. The calculated value of coefficient of correlation along with its level of significance is presented in table 5.

Table 5: Test-Retest Reliability

Grade	Attempt	r	Mean	S.D.	SEM	SER	Level of
Grade 9-10	Test	0.89	20.52	4.27	1.706	0.0412	Statistically Significant
	Retest		20.53	4.3			
Grade 11-12	Test	0.81	27.6	8.97	2.136	0.0184	Statistically Significant
	Retest		27.58	9.13			

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It is observed that coefficient of correlation(r) for both the groups are significant. Hence the Test-Retest reliability of the present test is significantly very high. Hence the present three tests are reliable tests.

Split-Half Reliability

The test was administered and method of dividing the test into two equivalent halves to take all odd items in one half and all even items in the other half to calculate the reliability was used. To compute coefficient of correlation, the data were entered in spread sheet standard wise.

Table 6: Split-Half Reliability

Grades	Coefficient of correlation		SEM	SER	Level of Significance
	The two halves	Full			
Grade 9-10	0.87	0.88	1.447	0.0123	Statistically
Grade 11-12	0.85	0.81	2.415	0.014	Statistically

It is observed that coefficient of correlation ranges from 0.85 to 0.87 between two halves while it ranges for the entire test from 0.81 to 0.88.

Reliability by Cronbach's α (alpha): Cronbach's ' α ' is the coefficient of reliability. It is commonly used as a measure of the internal consistency or reliability of a test score for a sample of examinees. It was first named by alpha by Lee Cronbach in 1951.

Table 7: Cronbach's alpha

Cronbach's alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha \leq 0.9$	Good
$0.7 \leq \alpha \leq 0.8$	Acceptable
$0.6 \leq \alpha \leq 0.7$	Questionable
$0.5 \leq \alpha \leq 0.6$	Poor
$\alpha \leq 0.5$	Unacceptable

The present test was administered and the data were entered Grade wise in spreadsheet. The computation of coefficient of correlation was done by using SPSS software.

Table 8: Cronbach Reliability

Grades	Cronbach α	SEM	SER	Level of Significance
Grade 9-10	0.84	3.416	0.0269	Statistically Significant
Grade 11-12	0.87	3.541	0.0222	Statistically Significant

It is clear that coefficient of correlations range from 0.84 to 0.87. In view to the referencing range of the Cronbach's α values are high. Additionally all values are significant at .01 level of significance. It means that the test is reliable.

CONCLUSION

Stream selection is one of the most important decisions a student has to make. It should be made after careful consideration of one's mental and intellectual levels along with skillset

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and the suitability to the type of work. Construction of the questionnaire would render fruitful results only if the data collected are properly analysed and correctly interpreted. This is important to ensure that the findings of the study would be authentic and can be of great help for planning and implementing further course of action for the benefit of the target population. The present research has been taken up for constructing and standardizing an assessment which would enable school going students to identify their true potential, know their learning styles, figure out their cognitive and mental abilities. The purpose includes to facilitate the learners to avail the recommendation regarding the stream they have the highest aptitude in. Through the analysis of data, it was established that Streampick is valid and reliable.

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Conflict of Interest

The author declared no conflict of interests.

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