

Construction And Standardization Of An Achievement Test In Computer Science For 10th Class

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Abstract:

Computers have changed the way in all professions. Today the role of computers in education has been given a lot of importance. In recent years, Computers play a vital role in every field. They aid industrial processes, find application in medicine; the reason why software industries developed and flourished and play an important role in education. This is why the education system has made computer science a part of school curriculum. Considering the use of computer technology is almost every sphere of life, it is important for everyone to have at least the basic knowledge of using computers.

Proficiency in Computer Science can be adjudged on the basis of an achievement tests. These tests can be subjective or objective. So, the investigator tried to construct and standardize an achievement test in Computer Science for class 10th.

Introduction

Rabindranath Tagore,

“Education enables the mind to find out the ultimate truth, which gives us the wealth of inner light and love and gives significance to life.”

Sri Aurobindo, “Education which will offer the tools whereby one can live for the divine, for the country, for oneself and for others and this must be the ideal of every school which calls itself national”.

Herbert Spencer defined “Education” as complete living.

Achievement

Simpson and Weiner (1989) defined “Achievement as measurable behavior in a standardized series of tests. It is regarded as action of completing or attaining by exertion. It subsumes anything won by exertion, a feat, a distinguished and successful action”.

Oxford Advance Learner’s Dictionary (1997) defined “Achievement as thing done successfully especially with effort or skill”.

University Examination Commission (1948-49) defined, “Achievement tests are used to discover the extent or knowledge or skills which has been acquired and retained by a student.”

Objectives of Achievement Test

1. To test Achievement of Pupils
2. To help in the classification of students.
3. To provide basis for admission.

4. To bring changes in the curriculum.
5. To award scholarship.
6. To attain success in Teaching
7. To assess the personality of the pupils.

Standardized Tests

standardized tests are carefully constructed tests which have uniformity or procedure in scoring, administering and interpreting the test result. A standardized test is always made by a professional tester or a group of testers. Standardized tests are not restricted to use in a school or a few schools but to larger population, so that many schools can use such type of tests to assess their performance. Generally, these tests are “norm-referenced” tests that measure the pupils’ level of achievement in various content and skill areas by comparing their test performance with the performance of other pupils’ in some general reference group.

Justification Of The Study

Some efforts are made in construction and standardization of achievement tests in Physics, Chemistry and Biology and Mathematics for classes from 5th to 10th for the states of Tamil Nadu, Punjab, Haryana, Maharashtra, Andhra Pradesh, Gujarat, Kerala and Orissa. In the field of English; Shih (2010), Ivanava (2011), Kaur (2014) constructed and standardized tests in English knowledge and comprehension, spelling and translation. To the best of knowledge of investigator, no standardized test of achievement in Computer Science has been made so far. It is felt that extensive efforts should be made to

develop more and more tests in Computer Science. As Computer is an important part of life now and its knowledge is must. This has initiated the investigator to develop an objective type test in Computer Science for class 10th students of Punjab.

Statement Of The Problem

“Construction and Standardization of an Achievement test in Computer Science for class 10th Students.”

Objectives Of The Study

- The Major objective of the study is to construct and standardize an Achievement test in Computer Science for class 10th students.

Delimitations Of The Study

- The sample was delimited to 50 students of 10th class for try out test and another 150 students of 10th class for administration of final form of the test.
- The test was restricted to the 10th class students under P.S.E.B. Mohali.
- The test was standardized for the state of Punjab only.
- The sample was taken only from the five schools of Abohar and Fazilka.
- The items of this test was selected from the Computer Science Book of class 10th

Related Review

Kaur (2015) constructed and standardized an Achievement test in Mathematics for 8th class students. Split half method was used for calculating reliability. The reliability co-efficient. was 0.72.

Sharma & Poonam (2017) constructed and standardized an achievement test in English Grammar for class 9th under Board of School Education, Haryana. The test was administered to 100 students. The reliability coefficient of the test results out to be 0.85 which shows that achievement test has high reliability.

Sample

A random sample was selected for standardizing the Achievement test. Only those students were selected who were promoted to 10th Class after clearing 9th Class Examination. Five schools belonging to Punjab School Education Board, Mohali were selected for data collection.

Selection of the Test Items

Since the Achievement Test was intended for standard 10th. Therefore, the Computer Science book prescribed by P.S.E.B, Mohali was used for constructing this test. The entire syllabus was thoroughly scrutinized for item selection. Attempt was made to include questions of all types based on knowledge of Computer. Multiple choice type questions were included with the help of expert judgment team.

Pilot Form

The pilot form of the Achievement test in Computer Science for standard 10th was prepared from Computer Science book of class 10th. 90 objective type questions were prepared. Each item was allotted one mark. This test was administered on 50 students of 10th standard from five schools of Abohar and Fazilka which belongs to P.S.E.B., Mohali.

Final form of the test was administered on 150 students of five schools of Abohar and Fazilka. 30 questions were selected for the final form of the test.

Item Analysis

The items were analyzed discriminatory index keeping in view their difficulty level. After the administration of the pilot form of the achievement test and the scoring of the test, the test questions were arranged from best to the worst.

Those with the difficulty level 40 to 60% and having discrimination index of 0.18 were retained in the Achievement test.

Discrimination index was calculated by the 27% rule. The group was divided into three parts. The best 27% is named as the upper group and the 27% from the worst end will be termed as the lower group.

Discriminatory index was calculated using the following formula.

$$D.I. = \frac{U-L}{N/2}$$

Where D.I. = Discriminatory Index

U = The number of students in upper group who response correctly.

L = The number of students in the lower group who response correctly.

N = The total number of students.

Items with the discrimination index equal to 0.18 was remained and below 0.18 was rejected.

Item Difficulty

The difficulty value of an item is defined as the proportion or percentage of the examinee that answers the item correctly. The proportion is known as the index of difficulty of an item. If an item is answered correctly by 90% of the examinees, it means that the item is relatively easy and is not discriminating well at the very bottom of the scale of the trait being measured. Likewise if an item is answered correctly by only 3% of the examinees, it seems that item is difficult one and is not discriminating well among the examinees at the higher level of the trait being measured. Which is answered correctly by 100% and 0% examinees, it has no differentiating significance. Items with the difficulty level between 40 to 60 % were retained and were selected for the final form of the test.

Administration of the Final Form of the Test and Collection of Data

The final form of the test was administered on 150 students of 5 schools of Abohar and Fazilka. The average time taken to complete the final form of the test was one hour.

Validity

Content validity of the achievement test in Computer Science was established with help of expert's opinion i.e. Computer teachers of different schools.

Reliability

The Split half method was used to establish reliability and calculated reliability is .72

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