A STUDY ON INTELLIGENCE OF HIGH SCHOOL STUDENTS

By

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ABSTRACT

Intelligence involves the ability to think, solve problems, analyze situations, and understand social values, customs, and norms. Intelligence is a general mental capability that involves the ability to reason, plan, think abstractly, comprehend ideas and language, and learn. Intellectual ability involves comprehension; understanding, and learning from experience. The objective of the study is to find out the intelligence of High School Students. Survey method was used for the study.1564 High School Students from Madurai and Virudhunagar Districts were taken as sample using stratified random sampling technique. Raven's Standard Progressive matrices were used to measure the intelligence of high school students. Mean. Standard deviation and t test were used to analyze the data. The results showed that there is significant difference in intelligence test scores of high school students in terms of area of study, gender, medium of instruction and board of school.

Key words: High School, Intelligence, Matric Board, State Board.

INTRODUCTION

Intelligence involves the ability to think, solve problems, analyze situations, and understand social values, customs, and norms. Intelligence is a general mental capability that involves the ability to reason, plan, think abstractly, comprehend ideas and language, and learn. Intellectual ability involves comprehension, understanding, and learning from experience (Armstrong, 1994). Intelligence is sometimes referred to as Intelligence Quotient (IQ), cognitive functioning, intellectual ability, aptitude, thinking skills and general ability. Intelligence testing is the estimation of a student's current intellectual functioning through performance of various tasks designed to assess different types of reasoning (Bindu , 2007).

Review of Literature

Stern (1914) defines intelligence as a general capacity of an individual consciously to adjust his thinking to new requirements. It is the general mental adaptability to new problems and conditions of life. According to Thorndike (1914) intelligence may be defined as the "power of good responses from the point of view of truth or fact (Bhatia,1973). Terman (1921) states that an individual is intelligent in the proportion that he is able to carry on abstract thinking. David Wechsler (1944) defined intelligence as the aggregate or global capacity of an individual to act purposefully, to think rationally, and to deal effectively with his environment. According to Jean Piaget (1952) intelligence is the ability to adapt to one's surroundings (Bracken and Mecallum1998).

Intelligence varies from individual to individual but it also tends to vary in the same individual from age to age and situation to situation. As the child grows in age, so does the intelligence as shown by intelligence tests. The age at which mental growth ceases, varies from individual to individual. It tends to stabilize after the age of ten and is fully stabilized during adolescence. The idea that intelligence continues to grow throughout life is strictly not true (Brody, 1992). Also the differences in sex do not contribute towards difference in intelligence. And intelligence is not a birth right of any particular caste, race or cultural group and the differences which are found can be the result of environmental factors and influences (Dandekar and sanyaglatha 2000).

The true nature of intelligence is that its distribution is not equal among all human beings (Mangal,2003) It is a normal distribution that is governed by a definite principle which states that the majority of people are at average, a few are very bright and a few are very dull. Wide individual differences exist among individuals with regard to intelligence. No two individuals, even identical twins or individuals' nurtured in identical environments, are bestowed with equal mental energy (Gardener, 1999).

It is possible to observe the intelligence of an individual only to the extent that it is manifested by the person in one or more intelligence tests (Mcguire, 1994). Many such tests have been devised by Psychologists for the measurement of intelligence. In reference to these, however, the term 'assessment' is preferred because, intelligence being only a concept or an abstraction rather than a substance, it cannot be measured in physical units like a length of cloth or temperature of the body (Robert Kaplan 1993).

Lawrence (2013) found that there is no significant difference between intelligence and academic achievement of high school students. Hossein (2011) found that it is necessary to take the role of Invitational Education and intelligence beliefs into account when studying academic performance. Jones (2011) found that many high school students believed that intelligence was malleable.

Need for the Study

At global level the demand for individuals with special skills and intelligence is increasing at an alarming rate. Though India has the facility to accommodate number of persons in its Higher Educational Institutions, India is not able to meet the global and local demands for persons with specific skills. India spends lots of money for school education and also works for total literacy in the states. Those students who clear the school final examination both at urban and rural parts of the country have disparity and there is much incongruence among them and they are not able to find their right choice of higher education and deserving scholarship. Memory based entrance examination and institutions are capable of systematically training an individual to score higher grade in the memory based tests. These types of tests prevent the entry of children with extraordinary skills in getting into Nation's premier technical institutions. Overcoming this disparity and sending the right person with proper aptitude for higher education is the need of the hour. Individuals differ widely in their potentials, intelligence, knowledge, and skills (Woolfolk, 2001)

To determine if a person has the skills for a particular job, or the intelligence to profit from a higher education, researchers have to assess the present and potential abilities of the students. In a technological society as complex as ours, the ability to match the unique talents of each person to the requirements of the job has advantages for both the individual and the society. What a person can do now and what he might do given training are not the same. We do expect each to have the potential for acquiring these skills. The distinction between a capacity to learn and an accomplished skill is important in appraisal. Tests designed to measure capacities, to predict what one can accomplish with training, are called aptitude tests; they include tests of general intelligence as well as tests of special abilities (Yelan, 1978)

An intelligence test is one that predicts how well you will do in an aptitude test. The more information one has, the better your decision will be. Guidance counselors can help to appraise the individuals' intelligence. Parents can provide the benefit of their experience. And the individual can also learn which professions will be in most demand at the time of his or her graduation. But most important is to know oneself and one's own strengths.

The investigator being a psychologist was very much concerned with the employability of the individuals, the identification of their potentials, and providing proper training. This could be done from the school level itself and standardized tools like, Raven's Standard Progressive Matrices were used to measure the intelligence of high school students in Madurai and Virudhunagar.

Statement of the Study

Does the intelligence of high school students' in Madurai differ from those in Virudhunagar? If so, to what extent?

Operational Definitions

Intelligence

According to the online dictionary, the term intelligence means "the capacity to acquire and apply knowledge, the faculty of thought and reason".

Operationally the term intelligence means the scores of high school students' in Raven's Standard Progressive Matrices.

High School Level

According to Webster's online dictionary high school level students means, a school especially in where "students studying from class eight to class ten between the age 13 to 15".

Operationally the term high school level students refer to students studying in class nine of the selected schools situated both in Madurai and Virudhunagar districts.

Objectives of the Study

- To find the level of intelligence of high school students.
- To find out the significant difference if any in intelligence of high school students in terms of area of study, gender, medium of instruction and board of school.

Hypotheses of the Study

H1: The intelligence test scores of high school students is below average.

H2: There is no significant difference in intelligence test scores of high school students in terms of area of study, gender, medium of instruction and board of school.

Method

Survey method was used for the study.

Sample and Sampling Technique

In this study, stratified random sampling technique was used. Considering the two strata as Madurai district and Virdhunagar district, 847 samples from Madurai district and 717 samples from Virudhunagar district were drawn randomly. The total number of samples taken for the study is 1564 high school students' of class nine. Of the total 1564 samples, 847 samples were from 13 schools of Madurai district and 717 samples were from 13 schools of Virudhunagar district.

Tools Used

Raven's Standard Progressive Matrices

The Raven Standard Progressive Matrices (RPM) test was developed in U.K. and is one of the best known and most popular non-verbal group tests. The RPM can be administered to a group or individual and covers the age group five years to elderly adults. Instructions are simple and, if necessary, the RPM can be administered by demonstration without the use of language. There are 60 matrices in the Raven's Standard Progressive Matrices which are graded in order of its difficulty. Each contains a logical pattern or design from six to eight alternate choices. The test may be used with or without any time limit, and research supports the RPM as a measure of general intelligence. This test has been designed to evaluate the subjects' ability to see the relationship between geometric figures or designs; and the ability to perceive the structure of a design in order to select the appropriate part for completion of each pattern. (Bhatia 1993)

Personal Data Sheet Prepared by the Investigators

Validity and Reliability of the tool

In this study the validity was done, and in an employment setting, evidence of content validity was established by demonstrating that the jobs, for which the Raven's Standard Progressive Matrices (SPM) is used, require the problem solving skills measured by the assessment. Criterion related validity was established reporting a positive relationship between scores on the Raven's Standard Progressive Matrices (SPM) and performance in decision making tasks. The SPM manual provides information indicating that the SPM validity predicts the ability of an individual to attain and retain jobs that require high levels of general mental ability.

The reliability was established by the author and the internal consistency reliability estimate of the Raven's Standard Progressive Matrices (SPM) was 0.88 in the standardization sample of 793 individuals. The reliability estimate indicates that the total raw score on the SPM possesses good internal consistency reliability as provided in the guidelines of the US Department of Labor

for interpreting a reliability co-efficient. The Raven's intelligence test is both a valid and reliable test.

Assumptions of the Study

It is assumed that the ninth standard high school students will respond to the questionnaire and tools sincerely. The findings or conclusions can be generalized and can only propose to be indicative and non-conclusive. So in this study it was assumed that students of both Madurai and Virudhunagar will not differ in their potentials.

Delimitations of the Study

- This study was limited only to 847 samples of Madurai district, and 717 samples from Virudhunagar district.
- This study was confined to only limited schools in Madurai and Virudhunagar districts.
- Moreover the samples were selected specifically from students of only ninth standard at the high school level.
- The study was limited only to State board and Matriculation board school student.

Statistics Used

Percentage analysis, Mean, Standard deviation and t-test were employed (Anatasi,1982).

Data Analysis

H1: The intelligence test scores of high school students is below average

From Table 1, it is found that 12.9% are defective, 31.7% are below average, 29.5%are average, 13.2% are above average and 12.7% are superior in the total sample based their intelligence test scores. From the table it is clear that the intelligence test scores of high school students is below average and the hypothesis is accepted.

H2: There is no significant difference in intelligence test scores of high school students in terms of area of study, gender, medium of instruction and board of school.

Intelligence Level	Sample Size	Defective	Below Average	Average	Above Average	Superior
Whole Sample	1564	12.9	31.7	29.5	13.2	12.7
Madurai	847	17.4	37.7	24.4	10.4	10.2
Virudhunagar	717	7.5	25.0	35.4	16.5	15.6

Table 1. Intelligence level of high school students

From Table 2, it was found that there is a significant difference between Madurai and Virudhunagar students with respect to variables namely Area of study, Gender, Medium of instruction and Board of school. The mean values show that intelligence test scores of high school students in Virudhunagar district had higher seores than school students of Madurai; Male students had higher scores than female students; English medium students scored higher than Tamil medium students and Matriculation board students get higher intelligence test scores than state board students.

From the table, it is clear that there is significant difference in intelligence test scores of high school students in terms of area of study, gender, medium of instruction and board of school and hence the null hypothesis is rejected.

Findings and Interpretations

The major findings of the study are given below.

It is found from the above study that the intelligence test score of high school students is below average. This may be due to the fact that schools concentrate more on the marks of the students and rote memory is encouraged without understanding the concepts.

It is found from the above study that there is significant difference in intelligence test scores of high school students in terms of area of study, gender, medium of instruction and board of school. This may be due to the nature of the school and different learning experiences gathered by students in varied atmosphere.

Recommendations

- It is found that the intelligence test score is below

Variables		N	Mean	S.D	t-value	P- Value	Remarks
Area of Study	Madurai	847	42.85	32.19	9.05	0.000	S
	Virudhunagar	717	57.45	31.38			
Gender	Male	796	54.38	32.53	6.04	0.000	S
	Female	768	44.52	32.00			
Medium of Instruction	Tamil	965	38.27	30.24	19.28	0.000	S
	English	599	67.70	27.84			
Board of School	State Board	1179	43.17	31.39	14.37	0.000	S
	Matriculation Board	385	69.05	28.41			

Table 2. Difference in intelligent test scores in terms of background variables

average for high school students. Reading, writing, speaking and conversing can be practiced more which will improve intelligence.

- Female students can involve themselves in playing number and logic games and sequencing activities that would develop intelligence.
- Involving visual perception of the environment, the ability to create and manipulate mental images, playing, dancing, active sports, listening to music will enhance one's intelligence.
- Understanding how to communicate with other people through cooperative games, group projects and discussions can help.
- State board schools can make the students create new things, implement prayer and meditation in their classrooms which can help the students to develop their intelligence.

Conclusion

Considering the diversity of the two districts, Madurai and Virudhunagar, and the varying differences of the population, the meaningful generalizations on measuring intelligence is not very easy, but it would be very helpful for the students in aspects like providing skill training, suggest careers according to differences in their potential and provide remedial for children who require them. Since the responsibility lies with the schools to help in the overall development of the students such study would be a guideline for the teachers, parents and the students. The students would have a clear picture of his/her strengths and weakness, and can focus on what strengths they need to focus on to select an appropriate career. Children may enter school with limited ambition and with little desire, to benefit from the opportunities that are presented to them. All children should have the opportunity to succeed regardless of gender, ethnicity, social background, or any other factors that may potentially affect their progress. However, ultimately they need to be stimulated and a desire for learning and achievement need to be inculcated, that will help to eliminate the exclusion and disengagement that characterizes the feelings of many towards our Education System. The children and young people of this country are its future and we owe it to them to provide the support that will unlock their potential.

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