



A STUDY ON THE GENERAL INTELLIGENCE OF HIGHER SECONDARY SCHOOL SCIENCE STUDENTS IN AIZAWL DISTRICT

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Abstract

Intelligence is mental ability indicative of the ability to learn, understand and interact with one's environment. Research in biological and social studies have shown that intelligence is an influential factor in all kinds of human endeavour. The purpose of this study is to assess the general intelligence of higher secondary school students of Aizawl district. The study is conducted on 200 science students of higher secondary schools in Aizawl district, out of which 100 are male and 200 females. The study revealed that students with superior intelligence are highest in number. It also revealed that the general intelligence of higher secondary school science students does not significantly differ with reference to their gender. However, students from rural areas are found to have higher intelligence than that of urban students.

Key Words: General Intelligence, Secondary School Science Students.

Introduction

Education as a process of imparting knowledge and skills requires the ability to grasp what is being imparted on the part of students, who are at the receiving end of it. The ability to learn is influenced by various factors; however, the mental ability of an individual is what drives the learning mechanism of a person. The capacity of a person's mind to learn from experience, adapt to new circumstances, comprehend and manage abstract concepts, and apply knowledge to influence their environment is referred to as intelligence.

The concept of "intelligence" divides psychologists and researchers all over the world. The term denotes different things for different thinkers with no consensus on what it really is. However, at its most basic level intelligence implies the ability to learn from, understand and interact with one's environment. Though theories of intelligence have yielded multiple interpretations, the foundation of intelligence as a general mental ability has been laid by Charles Spearman in 1904 in his theory of intelligence where he found that all intellectual factors have a single factor, the 'g-factor' and a series of specific ones or the 's' factors. Hence, the assessment of intelligence based on the 'g-factor' has been widely used in the study of intelligence over the years.

Rationale of the study

Intelligence is at the base of all learning. The awareness and understanding of

intelligence play a pivotal role in introducing interventions on an individual as well as on a large scale. Assessment of intelligence of students will provide an understanding of the ability of students which further explains the behaviour, performance, interests etc of the students. Studies have shown that intelligence is positively correlated to desirable life outcomes like educational achievement, higher income, creativity etc, therefore it is established that a study in this area will be beneficial in predicting the future success of students. The findings of the study is expected to provide reliable knowledge on the status of abilities possessed by science students in Aizawl district and eventually result in meaningful interventions to enhance such abilities. The study focused on science students since science is the most endless repository of knowledge when viewed from an intellectual perspective. The pursuit of science necessitates attributes like minute observation, concentration, precision, comprehension, problem-solving and rational thinking etc, demanding the ability to do so from the part of the learner. Hence, an assessment of intelligence will be useful to determine fitness for future career as well as present academic endeavour within the school.

Review of related literature

Anitha et al. (2013) observed that there is a significant difference between multiple intelligence levels of government school students and private school students, and that girls have more multiple intelligence levels than boys.

Rani and Prakash (2015) reveal that the high schools students of Madhurai and Virudhunagar possess below average intelligence. The intelligence of students also differ significantly based on their area of study, gender, medium of instruction, and board of school.

Nyicyor et al. (2016) found that the secondary school students of Arunachal Pradesh do not differ significantly in their intelligence with regards to their gender and locale. However, a significant difference was observed in the intelligence of government and private secondary school students of Arunachal Pradesh.

Parmar (2018) observed the existence of significant difference in the intelligence of the higher secondary school students with regards to gender, where the female students have higher intelligence than the male students. Significant difference was also observed in the general intelligence with regards to area of residence, where the students from rural higher secondary school students have more intelligence as compared to that from the urban areas.

Objectives

1. To find out the general intelligence level of higher secondary school science students in Aizawl district.
2. To compare the general intelligence of higher secondary school science students in Aizawl district with regards to gender.
3. To compare the general intelligence of higher secondary school science students in Aizawl district with regards to locale.

Hypotheses

1. There is no significant difference in the general intelligence level of male and female higher secondary school science students in Aizawl district.
2. There is no significant difference in the general intelligence level of urban and rural

higher secondary school science students in Aizawl district.

Methodology

The study is largely descriptive, therefore descriptive survey method is employed to carry out this study.

Population and Sample

The population for the study consists of students in Aizawl district. The sample of the study comprised of 200 students from science stream in higher secondary schools of Aizawl district, out of which 100 are male and 200 females. The sample in the study is drawn using stratified proportionate sampling method.

Tool used

G.C. Ahuja Group Test of Intelligence (GGTI) developed by Dr. G.C. Ahuja is used for collection of data for the study. The GGTI is a test battery containing a total of 135 test items divided into 8 sub-tests – Classification, Analogies, Arithmetic Reasoning, Vocabulary, Comprehension, Series and Best Answers.

Reliability of this test has been calculated by two methods. The coefficient of reliability obtained by test-retest method was found to be $.84 \pm .021$ and reliability coefficient by split-half method (correlation between scores on odd and even items) was $.951 \pm .004$ and reliability of the full test obtained by Spearman- Brown Prophecy formula was $.974 \pm .003$. The validity of the battery of seven tests was calculated by five methods namely: Symond's method (11.187), 27% upper and lower groups (39.80), Lawshe's Nomo graph (1.59), Flanagan's product-moment 'r' coefficient (.543), and Kelley's method (1.555) and were found fairly high (Ahuja, 2009).

Findings of the study

1. Objective no.1: To find out the general intelligence level of higher secondary school science students in Aizawl district

The finding in relation to objective no.1 is that, 47% have 'Superior' intelligence, and 24.5% of the higher secondary school students have 'High Average' intelligence. 21% of the higher secondary school students were found to have 'Average' intelligence while 3.5% of the students possess 'Low Average' intelligence. The percentage of students having 'Very Superior' and 'Mentally Defective' intelligence is 1.5% each, whereas only 1% of the higher secondary school students have 'Borderline Defective' intelligence. The findings of the study is presented in the table below

Classification	No. of students	Percentage
Very Superior	3	1.5%
Superior	94	47%
High Average	49	24.5%
Average	42	21%

Low Average	7	3.5%
Borderline Defective	2	1%
Mentally Defective	3	1.5%

2. *Objective no.2: To compare the general intelligence of higher secondary school science students with regards to gender.*

The finding in relation to objective no.2 is that male and female higher secondary science students do not differ significantly in terms of their general intelligence. This finding is derived from the t-value for the comparison of the mean scores of male and female students which is found to be 1.68 which is not significant. Hence, the null hypothesis, “There is no significant difference in the general intelligence level of male and female higher secondary school science students in Aizawl district” is accepted.

Gender	No. of Students	Mean	Standard Deviation	t-value	Significance Level
Male	100	114.08	16.55	1.68	Not significant
Female	100	117.53	12.10		

3. *Objective no.3: To compare the general intelligence of higher secondary school students with regards to locale.*

The finding in relation to objective no.3 is that urban and rural science students significantly differ in their intelligence. The t-value for the comparison of the intelligence of the students based on their locale is 2.02 which is significant at 0.05 level of significance. Hence the null hypothesis is rejected. The mean score of rural students is higher indicating that students from rural localities have higher intelligence than from the urban.

Locale	No. of Students	Mean	Standard Deviation	t-value	Significance Level
Urban	113	114.02	15.79	2.02	Significant at 0.05 level
Rural	87	118.38	14.20		

Suggestions to improve general intelligence

1. Initiatives must be taken to improve the general intelligence of students by using a variety of tested cognitive approaches, including mnemonics, problem-solving techniques, heuristics, creativity exercises, and decision-making tools.

2. Poor health has an impact on a person's mental state. Therefore, it is the responsibility of the students' parents and the school administration to ensure the children's physical well-being in order to maintain and improve intelligence.

3. Studies have shown that compared to neutral occurrences, emotional events are recalled more vividly, precisely, and for longer lengths of time. Therefore, the emotional health of students must be maintained in order to develop intelligence. It is essential for the guards of

children to create a healthy environment at home and school.

Conclusion

Intelligence is considered to be the backbone of learning as it enables a person to grasp, comprehend and analyze concepts, principles and situations. Intelligence breeds novelty and creativity which are all essential components in the process of learning and education. The findings in the study have revealed that many of the students have superior intelligence, followed by high average. The positive finding however, should not overshadow the fact that there are some students categorized as low average and mentally defective. Appropriate intervention to help develop higher intelligence is required to ensure that all learners are capable and equipped with the mental ability to achieve higher.

References

- Anitha, T. S., Vannessa, J., & Sreelakshmi, G. (2013). A study on the multiple intelligence levels of Secondary school students of Government and Private schools in Secunderabad. *IOSR Journal of Research & Method in Education (IOSR-JRME)*, 3(4), 12-18.
- Mangal, S. K. (2007). *Advanced Educational Psychology*. Prentice Hall of India Private Limited.
- Myrten, J. (2013). *A study of scientific attitude and general intelligence in relation to the level of academic achievement in science among higher secondary students in east khasi hills district Meghalaya*. [Unpublished doctoral dissertation]. North Eastern Hill University.
- Nyicyor, R., Chetia, P., & Dutta, J. (2016). intelligence and academic achievement of secondary school students of Arunachal Pradesh. *International Journal of Science and Research (IJSR)*, 5(10), 1435-1444.
<https://www.ijsr.net/archive/v5i10/ART20162303.pdf>
- Parmar, P.B. (2018). A study of intelligence of higher secondary school students in relation to gender and area of residence. *Journal of Information, Knowledge and Research in Humanities and Social Science*, 5(1), 315-319.
<http://www.ejournal.aessangli.in/ASEEJournals/HSS93.pdf>
- Rani, M. U., & Praksah, S. (2015). A study on intelligence of high school students. *i-manager's Journal on Educational Psychology*, 9(1), 46-51.
<https://files.eric.ed.gov/fulltext/EJ1098152.pdf>
- Sadiku, M. N., Ashaolu, T. J., & Musa, S. M. (2020). Essence of Human Intelligence. *International Journal of Scientific Advances*, 1(1), 35-39.
- Tyng, C. M., Amin, H. U., Saad, M. N., & Malik, A. S. (2017). The influences of emotion on learning and memory. *Frontiers in psychology*, 8, 1454.