Intelligence among the Students of Jawahar Navodaya Vidyalayas and Kendriya Vidyalayas

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Abstract

In the present study, the researchers have attempted to assess the intelligence among 770 Class VIII students in all. Of these, 320 are from Jawahar Navodaya Vidyalayas (JNVs) and 450 from Kendriya Vidyalayas (KVs). There was a significant difference between the students of JNVs and KVs on intelligence in favour of JNV students. Among the students of JNVs and KVs, the boys and girls do not differ significantly on intelligence.

INTRODUCTION

The Jawahar Navodaya Vidyalayas and Kendriya Vidyalayas are managed by the Government of India. The former is a residential school while the latter is a non-residential setup. The Navodaya Vidyalayas were started during the year 1985–1986 and it is managed by the Navodaya Vidyalaya Samiti which is fully financed by the Government of India. These schools were started to identify and nurture the rural talent of the country. The Kendriya Vidyalayas, which are predominantly located in urban centres, aim to cater to the educational needs of the children of central government employees.

There are 596 Navodaya Vidyalayas and 978 Kendriya Vidyalayas all over the country. The admission process for JNV is through a selection test at the district level, where only 80 students are selected for Class VI. However, in Kendriya Vidyalayas,

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only the children of Central Government employees are given admission. Students are selected based on the computerised lottery system. Getting admission to either a JNV or KV is a matter of prestige for children as is generally considered by the public. Both institutions are affiliated to the Central Board of Secondary Education (CBSE). The teachers in both the schools undergo a rigorous selection process and they are transferable throughout the country. The teacher training programmes are also given a lot of importance and they both get quality facilities and they are paid as per the norms of the Government of India. The students in these institutions are thus expected to be much better than those in other schools. Within these two systems, it is interesting to see whether students vary in terms of their abilities, with specific reference to intelligence. Thus, an attempt was made to compare the students of JNVs and KVs in the above backdrop.

Review of Literature

The nature of intelligence and contributing factors has been long discussed in the research literature of psychology, education and child development. Nevertheless, there is ongoing dispute about how intelligence develops and what affects this phenomenon. Intelligence is a concept related to the behaviours that are valued in a social and cultural context. Since the establishment of formalised education for a Westernised industrial society, education has focused on the development of literacy and numeracy skills and has acknowledged these areas as important in formal education. Thus, intelligence has been valued in those who are highly literate and numerate.

Intelligence has been defined in many ways. According to David Wechsler (1958, p. 3): 'Intelligence is the aggregate global capacity of an individual to act purposefully, to think rationally and to deal effectively with his environment'. Our active engagement in learning, understanding, planning, communication, problem solving and thinking are possible through intelligence.

Stern (1914, p. 3) defined intelligence as 'the 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 Piaget (1963, pp. 6–7), 'Intelligence is assimilation to the extent that it incorporates all the given data of experience within its framework. There can be no doubt either, that mental life is also accommodation to the environment. Assimilation can never be complete because by incorporating new elements into its earlier schemata,the intelligence constantly modifies the latter in order to adjust them to new elements'.

According to Robert Sternberg's Triarchic Model on Intelligence (1997) 'intelligent behavior results from a balance among analytical, creative and practical abilities. Therefore, it is a collective function of these abilities that allows an individual to achieve success within a particular socio-cultural context' (Kiran and Murthy 2016). With a changing scenario and thrust on a modern materialistic society, education has undergone a drastic change. A person's education has become an indicator of his status in the society. According to Hunt (1995), 'Individual's intelligence is a matter of the degree to which he or she is educable. If a person is able to learn something readily and quickly, he is said to be an intelligent person'.

According to Thurstone (1963), 'Intelligence, considered as a mental trait, is the capacity to make impulses focal at their early, unfinished stage of formation. Intelligence is, therefore, the capacity for abstraction, which is an inhibitory process'. Individuals differ from one another in their ability to understand complex ideas, to adapt effectively to the environment, to learn from experience, to engage in various forms of reasoning, and to overcome obstacles by taking thought. Although these individual differences can be substantial, they are never entirely consistent; a given person's intellectual performance will vary on different occasions, and in different domains, as judged by different criteria. Concepts of 'intelligence' are attempts to clarify and organise this complex set of phenomena.

Intelligence has been a concept that thinkers have grappled with since antiquity. Generally viewed, it represents some cognitive attribute associated with the capability to learn. Intelligence enables people to operate on environmental cues to build understanding and respond to their situations. It is the power, speed and capacity to overcome ignorance and be 'goal responsive' (Goldman 1986).

In another popular theory called the 'Theory of Multiple Intelligence' Gardner (1983) suggests that 'our instructional methods must undergo a revolution if we are to reach all students who have at least eight ways of knowing. This revolution must start with awareness of both learners and practitioners on the issues'. Even Samad (2012, pp. 608–617) argued that there is no 'right' or 'wrong' way to learn and there is no 'good or bad' learning style. What matters most is what works for an individual learner. A student who has found his own learning styles that best fit his or her own intelligences has found the 'right' way to learn. This is an argument that both practitioners and learners should agree on. Most often in traditional schools, the opportunity to use these multiple intelligences effectively is lacking.

Therefore, the measurement of intelligence is one of psychology's greatest achievements and one of its most controversial agendas.

Critics complain that no single test can capture the complexity of human intelligence; all measurement is imperfect, and no single measure is completely free from cultural bias. In the present study, intelligence is studied as one of the variables.

Therefore, in the present context, after carefully considering different researches through the review, the researcher has found that it is worthwhile to understand intelligence among the students of Jawahar Navodaya Vidyalayas (which are basically meant for catering to the requirements of the talented rural children), and Kendriya Vidyalayas (which are centrally-funded institutions where children of different levels of Central Government officers study). Therefore, in this context, the researcher feels the need to compare whether Jawahar Navodaya Vidyalayas and Kendriya Vidyalayas are at par with each other or not. From this viewpoint, there is a need to understand children who are 'above average' especially in these two systems, that is, Jawahar Navodaya Vidyalayas and Kendriya Vidyalayas.

Methods

In the present study, the researchers have raised the following research questions and also answered them through the present study.

Research Questions

1. Do students of JNVs and KVs differ on intelligence?
2. Do boys and girls differ significantly on intelligence?

In order to answer the above research questions, the following objectives have been developed and achieved in the present study.

Objectives

1. To study whether the students of JNVs and KVs differ significantly on intelligence
2. To study whether boys and girls differ significantly on intelligence

In order to achieve the above objectives, the following hypotheses have been generated and tested in the study.

Hypotheses

H1: There is no significant difference between the students of JNVs and KVs on intelligence.

H2: Boys and girls do not differ significantly on intelligence.

Design of the Study

The present study is a descriptive survey aiming to find out whether the students of JNVs and KVs differ on intelligence.

Sample

The sample of the study comprised 770 students, including boys and girls studying in Class VIII in Navodaya Vidyalayas and Kendriya Vidyalayas in Karnataka. The sample was selected using stratified random sampling technique.

Sampling Framework

JNV and KV Students of Class VIII				
	KV Schools – 9		***JNVs Schools 8***	
	North Karnataka	South Karnataka	North Karnataka	South Karnataka
Schools	4	5	5	3
Students	200	250	200	120
	450		320	
Total	770			

Tools and Technique

Variables	Tool	Author
Intelligence	Raven's Progressive Matrices	John C. Raven (1936)

Following tools were used in the study.

Data Collection Procedure

The selected students of the sample from the Jawahar Navodaya Vidyalayas and Kendriya Vidyalayas were administered the Raven's Progressive Matrices.

Raven's Progressive Matrices (RPM)

This scale is constructed by John C. Raven (1936). The Raven's Progressive Matrices is a non-verbal standardised intelligence test. It consists of 60 diagrammatic puzzles, each with a missing part that the test taker attempts to identify from several options. The 60 puzzles are divided into five sets (A, B, C, D and E) having 12 items each. It is usually regarded as a good measure of the non-verbal component of general intelligence rather than of culturally-specific information. It has been found to demonstrate reliability and validity across a wide range of populations, with retest reliabilities of .83–.93 over a one-year interval. Internal consistency coefficients of .80 have been found across many cultural groups.

Results and Discussion

The collected data were scored, tabulated and their descriptive statistics were calculated. Further, hypothesis-wise the results were treated with inferential statistics. The hypothesis-wise obtained results are presented and discussed as follows.

Table 1
Significance of the Difference Between the Students of JNV and KV on Intelligence

Independent Sample Test								
Schools	***N***	***Mean***	***SD***	***SE***	***df***	***t-value***	***Significant***	***Inference***
KV	450	66.35	26.02	1.22	768	9.88	.01	Significant
JNV	320	92.62	16.29	.91				

Hypothesis 1. There is no significant difference between the students of JNVs and KVs on intelligence.

In order to test the above hypothesis, the mean scores obtained by the students of JNV and KV on intelligence test were computed, apart from the computation of standard deviation (SD) and standard error (SE). Further, the significance of the difference between the mean scores of the two schools was also computed using 't' test which yielded the following results.

An analysis of the above table indicates that there were 450 students of KVs and 320 students of JNVs. The mean score of the students of KVs is 66.35, while that of JNVs is 92.62. In terms of the standard deviation, KVs have 26.02, while that of JNVs have 16.29. It means that the spread of scores away from the mean is apparently more among KV students, suggesting that the variation is more among the KV students as compared to the students of JNVs. In order to see whether the obtained mean difference is true of the population also, the scores were subjected to 't' test, which was 9.88, which is statistically significant at 0.01 levels. Therefore, the null hypothesis is rejected. It means the students of JNVs and KVs have differed significantly on intelligence in favour of JNV students as their mean scores are higher than the students of KVs. It means the students of JNVs are significantly more intelligent than the students of KVs. This could be because the students selected for the JNVs are selected at the district level on merit and are provided education in a residential setup, while it is not so with KV students.

There are studies conducted where there is a significant difference in the intelligence of students from different ability groups. These include Preckel, F. et al. (2016) Intellectual self-concept in gifted students, Song, et al. (2010) differential effects of general mental ability and emotional intelligence, Kim (2016) intelligence among high school students, Punia and Sangwan (2011), Rohde and Thompson (2007) intelligence predicts SES factors, Tamannaifar et al., (2010) intelligence on pre-university girls. The above-mentioned

studies support the findings of the present study.

On the other hand, there are some studies which contradict the present findings. Freeman (1934) cultural factors, Husen (1951) higher primary students, Jensen (1977) East Asian students, Koke and Vernon (2003) practical intelligence among high school students, Lawrence and Deepa (2013) emotional intelligence between urban and rural schools, Girija (1980) intellectual and non-intellectual factors in advantaged and disadvantaged students, Varte, Zokaitluangi and Lalhunlawma (2006) secondary school students of Arunachal Pradesh also found similar results on intelligence.

Hypothesis 2. Boys and girls do not differ significantly on intelligence.

In order to test the above hypothesis, the mean scores obtained by boys and girls on the intelligence test were computed apart from the computation of SD and SE. Further, the significance of the difference between mean scores of the two groups were computed using 't' test which yielded the following results.

An analysis of the above table indicates that in total, there were 770 students in the study, of which 402 were boys and 368 were girls. The mean score of boys is 74.14 while the girls have 71.99, which leaves a small difference. The standard deviation for boys was 22.84, while that of the girls was 24.93, suggesting that the spread of scores away from the mean is more among the girls in comparison to the boys. The obtained 't' value is 1.24, which is statistically not significant. So, the null hypothesis is accepted. Hence, it can be concluded that there is no difference in the intelligence of boys and girls studying in KV and JNV.

Conclusions

1. The students of Jawahar Navodaya Vidyalayas are more intelligent than the students of Kendriya Vidyalayas.
2. The boys and girls of JNVs and KVs are same on their intelligence.

Further, within the JNVs and KVs, boys and girls do not differ on intelligence, indicating that gender has no particular role in terms of intelligence among the learners.

Table 2
Significance of the Difference between Boys and Girls on Intelligence

Independent Sample Test									
		N	***Mean***	***SD***	***SE***	***df***	***t-value***	***Significant***	***Inference***
Intelligence	Boys	402	74.14	22.84	1.13	768	1.24	.19	Not Significant
	Girls	368	71.99	24.93	1.29				

Thus, all learners can be encouraged alike to develop intelligence to their best. On the whole, it was found that, irrespective of learners belonging to JNVs or KVs, gender differences in intelligence do not exist. This implies and reinforces that gender has nothing to do with intelligence.

Implications

Intelligence is a great asset and a virtue among children which needs to be assessed and nurtured by schools and the community. Teachers in schools are to be aware of these potentialities and must work towards nurturing the same. The students of JNVs are found to be more intelligent and on the whole there exists no gender difference between boys and girls among JNVs and KVs. In either case, the role of a teacher becomes seminal in understanding the intelligence potentials of their students and nurturing them. In the interest of the students, it is desirable that the takeaway of these studies reach the attention of teachers

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