

# ***THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES***

## **A Comparative Study on Intelligence of First Generation Learners and Non First Generation Learners from Lower Socio Economic Class in Upper Primary Level**

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### **Abstract:**

*The current study aims to compare intelligence between First Generation Learners (FGL) and Non First Generation Learners (NFGL) within the age group 11 to 13 years, belonging to lower socio economic class. A sample of 64 students was selected from urban areas of Kolkata by the method of stratified purposive sampling. It was further classified into 32 First Generation Learners (16 male and 16 female) and 32 Non First Generation Learners (16 male and 16 female); all of them pursuing formal schooling. Malin's Intelligence Scale for Indian Children (MISIC) was used to get the measure of IQ (measurement of Intellectual functioning) and Kuppuswamy's Socio Economic Status Scale was used to measure socio-economic class. Descriptive statistics (mean and SD) and t-test were done for analysis. Findings show that the NFGL scored significantly higher in intelligence than the FGL. Further exploration suggested that between the two groups although there was no significant difference in terms of performance quotient, the verbal quotient was significant higher for the NFGL. The study further explored the impact of parental education and their occupation and home environment on FGL and NFGL groups and found that the latter got more supportive and warm environment, congenial for growth.*

### **1. Introduction**

India is the land of the *Gurukul* system. Earlier, education was restricted to particular caste (upper caste) and the methods of teaching and learning were very different from the modern day. School going is the characteristic of modern-age India. In fact, today when development all over the world is rapidly taking place, education is seen as the most influential agent of modernization. Yet, sadly, as per Census 2016 report, literacy rate in India is 74.04% and Parental illiteracy is claimed to be one of the main causes for lack of interest to become literates. This makes bulk population rural or urban school-goers to be 'first generation learners', who come from illiterate families. They have no prior exposure, idea or stimulation regarding schooling and are going to face this novel situation without much or any parental aid (Mondal, 2016). Earlier studies have shown that family is an important mediator in child's educational growth and that both parent education and family interaction patterns during childhood are linked directly to a child's academic development and success (Dubow et al., 2009). Bandura (1986) described the role of observational learning which further emphasizes that children model their parents and tend to imitate their behaviour by observation. In Indian scenario, even when times are changing, the bulk of rural India witnesses stay-at-home mothers. Mothers' education seems to play an even more important role in a child's education and intellectual outcomes than any other family member. (Duncan and Brooks-Gunn, 1997).

In this study, the measure of Intelligence covers not only a global measure but the measure of its components as well. Intelligence is a construct comprising several underlying concepts. Broadly classifying, the Verbal and Performance Intelligence form the two main components of intelligence which can be sub divided further. Various sub tests and the cognitive functions assessed by the test used in the current research – MISIC (Malins Intelligence Scale for Indian Children). Verbal test like crystallized intelligence, verbal reasoning and comprehension, working memory, attention, concentration, numerical reasoning, sequencing, mental manipulation, abstract reasoning, crystallized intelligence, memory, associative and categorical thinking, verbal expression, encoding, sequencing skills, cognitive flexibility, mental alertness are assessed. On the other hand performance IQ was assessed by visual perception and organization, concentration, visual recognition of essential details of objects, memory, ability to analyze and synthesize abstract visual stimuli, nonverbal concept formation, reasoning, visual-motor coordination, fluid intelligence.

### **2. Justification of the Study**

Need of this study is to measure cognitive functioning and intellectual gap between First Generation Learners and non- First Generation Learners. If a gap is found, then special assistance can be given to the required group (low IQ students) which will help in making education policies for filling the gaps in order to achieve maximum cognitive development.

### 3. Operational Definitions

- 3.1. First Generation Learners: - "A student, who is the first in his /her family (mother, father, or siblings to go formal school education" (Adachi, 1982).
- 3.2. Non- First Generation Learners: - Non First Generation Learners are those whose parents have least experience of formal schooling and give educational support to their children at home.
- 3.3. Intelligence Quotient: - A number used to express the relative intelligence of a person.
- 3.4. Full scale IQ: - It is an average score of Verbal IQ and Performance IQ.
- 3.5. Verbal IQ: - The measurement of Information skill, Comprehension skill, Arithmetic skill, Vocabulary skill and Span skill.
- 3.6. Performance IQ:- The measurement of Picture Completion test, Block Design test, Object Assembly test and Mazes test
- 3.7. Lower Socio-economic Class: - According to classification of Kuppuswamy socioeconomic status (2014,Jan), lower socioeconomic class categorized into three parts on the basis of income .Lower class (Rs.≤1802/month), Upper lower class (Rs.1803-5386/month) and Lower Middle class (Rs.5387-8988/month).
- 3.8. Upper Primary: - According to National Curriculum Framework (NCF) 2005 in India, class VI to VIII is called as Upper Primary i.e. 11 to 13 years.

### 4. Methodology

#### 4.1. Objectives

- To compare the full scale IQ between first generation learners (FGLs) and non first generation learners (NFGLs) from lower socio-economic class in upper primary level.
- To compare the Verbal IQ between first generation learners (FGLs) and non first generation learners (NFGLs) from lower socio-economic class in upper primary level.
- To compare the Performance IQ between first generation learners (FGLs) and non first generation learners (NFGLs) from lower socio-economic class in upper primary level.
- To find out whether there is any association of the parental literacy and the Mother's Occupation with the IQ of first generation learners and non first generation learners from lower socio economic class in upper primary level.
- To find out whether there is any association of the preschool education and verbal IQ of first generation learners and non first generation learners from lower socio economic class in upper primary level.

#### 4.2. Hypotheses

- There is significant difference in full scale IQ among FGLs and NFGLs from lower socio economic class in upper primary level.
- There is significant difference in verbal IQ among FGLs and NFGLs from lower socio economic class in upper primary level.
- There is significant difference in performance IQ among FGLs and NFGLs from lower socio economic class in upper primary level.
- There is association with the Parental literacy and the IQ of FGLs and NFGLs, from lower socio economic class in upper primary level.
- There is association with Mother's occupation and the IQ of FGLs and NFGLs from lower socio economic class in upper primary level.
- There is association with preschool education and verbal IQ of FGLs and NFGLs from lower socio economic class in upper primary level.

#### 4.3. Sample

A sample of 64 students was selected from urban areas of Kolkata by the method of stratified purposive sampling. It was further classified 32 First Generation Learners (16 male and 16 female) and 32 Non First Generation Learners (16 male and 16 female); all of them pursuing formal schooling. All of them belonged to upper primary level, aged between 11 to 13 years.

#### 4.4. Tools

To assess the level of intelligence in terms of IQ i.e. verbal IQ and Performance IQ, Malin's Intelligence Scale for Indian Children (MISIC), 1969 was used. Kuppuswamy's Socio Economic Status Scale, 2015 was used to measure socio-economic class of the students. General Information Schedule was developed to measure parental background.

#### 4.5. Procedure

This study was conducted with 32 First Generation Learners and 32 Non First Generation Learners from two schools under The Kolkata Municipal Corporation (KMC) with the permission of the authority concerned. Both of schools are also collaborated with the two NGOs. First generation learner students were recognized by the 'trap teachers' of these NGOs. For making a good rapport with students and parents more than one personal meeting was conducted and after screening of Kuppuswami's socio-economic test, the administration of IQ test was done. Non First Generation Learner students were also selected from the same KMC schools and same socio economic background also. The investigator was present while they were responding and provided help for any kind of difficulty. It took 40 to 45 minutes for each student for IQ test and 20 minutes from each parent for collecting personal data. The

reliabilities of the questionnaires were computed on this data. Moreover the independent and dependent variables were significantly associated in some respects. After data collection the responses were scored and then subjected to the statistical analysis. After data collection the scoring for all the scales was done by hand according to the manuals. The obtained data was analyzed using the appropriate parametric test after testing for normality. All statistical calculations were done with the help of available standardized computer packages (SPSS version 22). For analysis 0.05 and 0.01 levels of significance were considered. Student's t- test was done to assess the significance of mean difference between the two groups viz. FGLs and NFGLs with respect to the chosen variables. Data were analyzed using mean, SD, t-test and chi square test.

## 5. Results and Discussion

| DIMENSIONS            | MEAN         |              | SD           |              |
|-----------------------|--------------|--------------|--------------|--------------|
|                       | FGL (N-32)   | NFGL (N-32)  | FGL (N-32)   | NFGL (N-32)  |
| <b>FULL SCALE IQ</b>  | <b>87.02</b> | <b>92.62</b> | <b>12.89</b> | <b>13.67</b> |
| <b>VERBAL IQ</b>      | <b>84.58</b> | <b>89.60</b> | <b>10.18</b> | <b>13.77</b> |
| 1.Information         | 83.38        | 90.75        | 10.34        | 13.38        |
| 2.Comprehension       | 92.78        | 91.16        | 11.53        | 16.71        |
| 3.Arithmetic          | 87.13        | 90.59        | 8.03         | 10.5         |
| 4.Vocabulary          | 70.78        | 79.34        | 7.01         | 9.73         |
| 5.Digit Span          | 88.84        | 96.15        | 13.98        | 18.53        |
| <b>PERFORMANCE IQ</b> | <b>89.46</b> | <b>93.64</b> | <b>15.61</b> | <b>13.57</b> |
| 1.Picture Completion  | 74.47        | 78.93        | 11.11        | 9.73         |
| 2.Block Design        | 103.87       | 108.53       | 18.44        | 16.85        |
| 3.Object Assembly     | 68.53        | 72.31        | 8.09         | 8.19         |
| 4.Mazes               | 97.5         | 100.47       | 18.67        | 18.96        |
| 5.Coding              | 102.94       | 107.94       | 21.73        | 14.14        |

Table 1: Descriptive statistics of FGL and NFGL on Intelligence

From the above table it can be seen that the non first generation learners have scored more as compared to the first generation learners in both the variables as well as in each and every dimension of the variables. Past research also shows that the IQ of First generation children were usually within the low to border related range (76 to 100, with the midpoint around 87) than other mainstream children (Stephen,1996).

| Variable              | t-value      | Significance   | Comments      |
|-----------------------|--------------|----------------|---------------|
| <b>FULL SCALE IQ</b>  | <b>-2.89</b> | <b>0.005**</b> | <b>2&gt;1</b> |
| <b>VERBAL IQ</b>      | <b>-3.51</b> | <b>0.001**</b> | <b>2&gt;1</b> |
| 1.Information         | -2.6         | 0.012*         | 2>1           |
| 2.Comprehension       | 0.151        | 0.88           | N.S           |
| 3.Arithmetic          | -1.69        | 0.95           | N.S           |
| 4.Vocabulary          | -4.35        | 0.000**        | 2>1           |
| 5.Digit Span          | -1.94        | 0.057          | N.S           |
| <b>PERFORMANCE IQ</b> | <b>-1.73</b> | <b>0.008**</b> | <b>2&gt;1</b> |
| 1.Picture Completion  | -1.9         | 0.061          | N.S           |
| 2.Block Design        | -1.19        | 0.237          | N.S           |
| 3.Object Assembly     | -1.99        | 0.05           | N.S           |
| 4.Mazes               | -0.795       | 0.43           | N.S           |
| 5.Coding              | -1.44        | 0.155          | N.S           |

Table 2: Results of t-test between FGL & NFGL with respect to the variables IQ and its subtests \*- Significant beyond 0.05 level 1= FGL  
\*\*- Significant beyond 0.01 level 2=NFGL

From the above table a significant difference is observed between Full scale IQs, Verbal IQ as well as Performance IQ of the FGL and NFGL groups, with the NFGL group scoring significantly higher in each case. Further exploration reveals that in Verbal IQ two of its sub-tests i.e. Information and Vocabulary significantly differed in the two groups, with NFGL groups scoring higher than the other. For Performance sub tests, no significant difference was found between the two groups.

As family is the first agent or source of gaining knowledge if this source itself lacks influence then the child grow in such environment can expected to be lagging behind in terms of acquiring verbal knowledge. On the other hand performance IQ mostly covers the areas which do not required much used of language. Through environment exploration a child can learn to manipulate his environment to meet his need. When our ancestors, the early men, had not developed verbal means of communication, they had already discovered plenty of tools and established themselves one top of the food chain. This shows that language came much later in the evolution of cognitive capacities. Manipulation of environment through performance is much more primitive. This might be a reason that no significant difference was found between the FGL and NFGL with respect to performance IQ. Language is a medium of

communication and most of our knowledge is acquired in the academic world through language. This stimulation is greatly lacking in First Generation Learners. Hence, in case of academia, the FGLs lag behind the NFGLs.

| Parent Education | Low average IQ | Average IQ | TOTAL |
|------------------|----------------|------------|-------|
| Illiterate       | 62.50%(20)     | 37.50%(12) | 32    |
| Literate         | 28.12%(09)     | 71.87%(23) | 32    |

Table 3: Verbal IQ and Parents Education

First generation learners perceived their parents as careless, non-helping, critical, over-demanding, indifferent, dominating, partial, rejecting and highly strict. These aspects might contribute to a lowered level of interest and academic involvement among FGLs. This is also reflected in table 3 where it can be clearly seen that literacy in parents can be a remarkable influence on children's verbal IQ.

| Mother Occupation | Border line IQ |        | Low average IQ |      | Average IQ |        | TOTAL |
|-------------------|----------------|--------|----------------|------|------------|--------|-------|
|                   | FGL            | NFGL   | FGL            | NFGL | FGL        | NFGL   |       |
| House wife        | 00%            | 03.57% | 17.85%         | 25%  | 07.14%     | 46.42% | 28    |
| House business    | 00%            | 00%    | 08.33%         | 50%  | 00%        | 41.66% | 12    |
| Working           | 08.3%3         | 00%    | 62.5%          | 00%  | 07%        | 29.16% | 24    |

Table 4: IQ and Mother Occupation

The above table reflects that 62.5% of FGLs with working mothers were found to possess low average IQ. No one can replace the mother. Mother is the first teacher and she can provide with the fundamental knowledge a child needs while growing up. Although themselves illiterate, they can provide a cooperative and encouraging environment at home. Hence, their absence, which in turn might be a consequence of economic deprivation, might reflect poorer IQ scores among FGLs. (Hearther et. al., 2010)

## 6. Conclusion

- The present study clearly states that stark differences in intelligence between FGLs and NFGLs with the former scoring considerable lower in both aspects.
- Non First Generation Learners have better IQ than First Generation Learners though both of them belong to same SES and same educational standard and got equal opportunity from school.
- Verbal IQ as well as expression ability through verbal communication is better among non first generation learner than First Generation Learners.
- Performance skills are much faster, well developed and all tests are easily done by non first generation learner than First Generation Learners.
- Along with it, the study also reflects two loopholes (Parental Literacy and Mother's Occupation) which might be contributory factors in the poor cognitive development of First Generation Learners.

The implication of the current study thus lies in the fact that these students need extra care and concern which is not limited to their school environment. Educating the parents, or at least psycho-educating them regarding the importance of education, bridge courses, adverse effects of conflict etc., might help in providing a first generation learner cope with the paramount difficulties s/he encounters. Despite limitations like small size of sample and restriction to low socio economic stratum, this study paves the way for future researches and development of modules to aid education of first generation learners.

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