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## Parental factors influence on cognitive abilities of children from Nali-Kali (Joyful-learning) and conventional education program

**Soumya Hirelingannavar and Manjula Patil**

### Abstract

The study was conducted in Dharwad taluk of Karnataka state during the year 2016-17 to know the influence of parental factors on cognitive abilities of children from Nali-Kali (Joyful-Learning) and conventional education program in rural and urban areas. Total samples of 128 school children studying in 4<sup>th</sup> standard (64 children from Nali-Kali and 64 children from conventional schools) were selected from 8 schools (4 Nali-Kali and 4 Conventional) of rural and urban areas of Dharwad taluk. Wechsler's Scale of Intelligence for Children-III was administered to measure cognitive abilities of children in both rural and urban areas from Nali-Kali and conventional schools. The findings revealed that, in Nali-Kali and conventional schools of both rural and urban areas, father's education did not showed much difference in cognitive abilities of children. Whereas mother's who had higher education their children scored higher in verbal intelligence. In rural and urban areas of Nali-Kali and conventional school, father's occupation showed no difference in cognitive abilities. In case of mother occupation in rural and urban areas of Nali-Kali and conventional school, mother's occupation showed no difference in cognitive abilities of the children.

**Keywords:** Cognitive abilities, intelligence, parent's education, parent's occupation, Nali-Kali and conventional schools

### Introduction

Cognitive development is the construction of thought processes, including remembering, problem solving, and decision-making, from childhood through adolescence to adulthood. It refers to how a person perceives, thinks, and gains understanding of his or her world through the interaction of genetic and learned factors. Among the areas of cognitive development are information processing, intelligence, reasoning, language development, and memory (Burger, 2003) [6].

Cognitive development has far reaching implications for curriculum development, planning, implementation, evaluation and instructional management in schools. Curriculum planning revolves around the subject matter, the society and the learner. In the subject matter, orientation in planning, then the structure of the content should be a sequence that is compatible with child development characteristics. Exploration and discovery are vital to school-age children's cognitive development. Learning program should provide children and youth with plenty of opportunities to engage in activities that promote exploration and learning in multiple areas: Math, Science, Social Studies, Language, Literacy, Art and Technology. Cognitive functioning is a term referring to an individual's ability to process (thoughts) that should not deplete on a large scale in healthy individuals. It is defined as "the ability of an individual to perform the various mental activities most closely associated with learning and problem solving, examples include verbal, spatial, psychomotor and processing-speed ability" (Carlson and Unger 2000) [7].

Cognition mainly refers to things like memory, the ability to learn new information, speech and understanding of written material. The brain is usually capable of learning new skills, typically in early childhood and of developing personal thoughts and beliefs about the world. Cognitive skills include the ability to learn, to process, apply knowledge, to analyze and reason and to evaluate and decide. It develops differently for different people, which is why people can demonstrate different levels of ability when it comes to learning and other forms of cognitive performance.

Parenting is traditionally conceptualized as an exogenous environment that affects child development. However, children can also influence the quality of parenting that they receive.

**Materials and Methods**

The study was conducted in rural and urban areas of Dharwad taluk of Karnataka state during the year 2016-17. The differential design used to see the difference between gender and ordinal position on cognitive abilities. The samples were selected from 8 schools (4 Nali-Kali and 4 conventional) children studying in 4<sup>th</sup> grade who attended Nali-Kali up to 3<sup>rd</sup> level and who are in 4<sup>th</sup> grade of conventional school of rural and urban areas of Dharwad taluk. A sample comprised of 128 children, 16 children (8 boys and 8 girls) from Nali-Kali and conventional school were randomly selected.

For the study purpose, the influencing parental factors such as parent’s education and parent’s occupation were considered.

**Tools description**

**Wechsler Intelligence Scale for Children - Third edition (WISC-III) developed by David Wechsler (1974)** is an individually administered clinical instrument for assessing the intellectual ability of 6-16 years old children. WISC-III consists of 13 subsets, each measuring different aspects of intelligence. They are organized into two groups’ i.e performance tests and verbal subtests. Performance tests consist of seven subtests i.e picture completion, picture arrangement, coding, object assembly, and block design, symbol search and mazes. Verbal tests consist of six subtests i.e. information, similarities, arithmetic, vocabulary, comprehension and digit span.

After the response for each subtest, the correct responses have been scored with one and summed to obtain raw scores. The raw score of each subtest are converted to scaled score by referring to the table in the manual, based on the chronological age of the child, the scaled score of each subtest are added separately to get verbal and performance intelligence score.

Classification	Intelligence Quotient
Very superior	130 and above
Superior	120-129
High average	110-119
Average	90-109
Low average	80-89
Borderline	70-79
Intellectually Deficient	69 and below

**Table 1:** Frequency distribution of Nali-Kali and conventional school children in rural and urban areas by child characteristics N=128

Child characteristics		Rural (n=64)		Urban (n=64)	
		Nali-Kali (n=32)	Conventional (n=32)	Nali-Kali (n=32)	Conventional (n=32)
Gender	Boys	16 (50.00)	16 (50.00)	16 (50.00)	16 (50.00)
	Girls	16 (50.00)	16 (50.00)	16 (50.00)	16 (50.00)
	Total	32 (100)	32 (100)	32 (100)	32 (100)
Ordinal Position	First born	10 (31.25)	09 (28.13)	14 (43.75)	15 (46.88)
	Second born	18 (56.25)	20 (62.50)	16 (50.00)	14 (43.75)
	Third born	04 (12.50)	03 (9.37)	02 (6.25)	03(9.37)
	Total	32(100)	32(100)	32(100)	32(100)

Figures in parenthesis indicate percentage

**Distribution of Nali-Kali and conventional school children of rural and urban areas by parental characteristics**

Results related to distribution of children according to

**a) Parent’s education:** Education of parents (father and mother) were categorized into eight categories as prescribed by Aggrawal *et al.* (2005) <sup>[1]</sup> scale as follows.

Category	Scores
Professional qualification with technical degree or diploma	7
Post graduation	6
Graduation	5
10 <sup>th</sup> pass but < graduation	4
Primary pass but < 10 <sup>th</sup>	3
< Primary but attended school for atleast one year	2
Just literate but not schooling	1
Illiterate	0

**b) Parent’s occupation:** Occupation of parents (father and mother) were classified into six categories as indicated below.

Category	Score
Service in central/ state/ public undertaken	5
Service in private sector/ business	4
Service at shops, transport, own cultivation of land	3
Self-employment with income >5000	2
Self-employment with income <5000/ labourer/housewife	1
Unemployment	0

**Results and Discussion**

**Distribution of Nali-Kali and conventional school children of rural and urban areas according to child characteristics**

Results related to distribution of children according to child characteristics such as gender and ordinal position are presented in table 1. With regard to gender, boys and girls were equally distributed in both Nali-Kali and conventional schools of rural and urban areas.

With regard to ordinal position of the children in rural locality, majority (56.25%) of children from Nali-Kali schools were second born children, followed by 31.25 percent were first born children and 12.50 percent were third born children. In case of conventional school, majority (62.50%) of children were second born, followed by 28.13 percent were first born children and 9.37 percent were third born children.

In urban locality, among Nali-Kali school children, 50.00 percent were second born children, followed by 43.75 percent were first born children and 6.25 percent were third born children. In case of conventional school children, majority (46.88%) were first born children, followed by 43.75 percent were second born children and 9.37 percent were third born children.

parental characteristics such as father’s education, mother’s education, father’s occupation and mother’s occupation are presented in table 1.1 and 1.1a.

**Table 1.1:** Frequency distribution of Nali-Kali and conventional school children in rural and urban areas by parent's education N=128

Parent's education	Rural (n=64)				Urban (n=64)			
	Nali-Kali (n=32)		Conventional (n=32)		Nali-Kali (n=32)		Conventional (n=32)	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
Professional qualification with technical degree or diploma	-	-	-	-	-	-	-	-
Post-graduation	-	-	-	-	-	-	-	-
Graduation	-	-	-	-	-	-	-	-
10 <sup>th</sup> pass but < graduation	10 (31.24)	08 (25.00)	14 (43.75)	13 (40.63)	12 (37.50)	10 (31.25)	18 (56.25)	16 (50.00)
Primary pass but < 10 <sup>th</sup>	15 (46.88)	14 (43.75)	16 (50.00)	15 (46.87)	16 (50.00)	16 (50.00)	14 (43.75)	14 (43.75)
< Primary but attended school for at least one year	07 (21.88)	10 (31.25)	02 (6.25)	04 (12.50)	04 (12.50)	06 (18.75)	-	02 (6.25)
Just literate but not schooling	-	-	-	-	-	-	-	-
Illiterate	-	-	-	-	-	-	-	-
Total	32 (100)	32(100)	32 (100)	32(100)	32 (100)	32(100)	32 (100)	32(100)

Figures in parenthesis indicate percentage

**Table 1.1a:** Frequency distribution of Nali-Kali and conventional school children in rural and urban areas by parent's occupation N=128

Parent's occupation	Rural (n=64)				Urban (n=64)			
	Nali-Kali (n=32)		Conventional (n=32)		Nali-Kali (n=32)		Conventional (n=32)	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
Service in central/ state/ public undertaken	-	-	-	-	-	-	-	-
Service in private sector/ business	08 (25.00)	-	12 (37.50)	-	06 (18.75)	-	18 (56.25)	-
Service at shops, transport, own cultivation of land	18 (56.25)	14 (43.75)	20 (62.50)	16 (50.00)	16 (50.00)	06 (18.75)	14 (43.75)	10 (31.25)
Self-employment with income >5000	-	-	-	-	-	-	-	-
Self-employment with income <5000/ labourer/ housewife	06 (18.75)	18 (56.25)	-	16 (50.00)	10 (31.25)	26 (81.25)	-	22 (68.75)
Unemployment	-	-	-	-	-	-	-	-
Total	32 (100)	32(100)	32 (100)	32(100)	32(100)	32(100)	32 (100)	32(100)

### Father's education

With respect to father's education, it was found that, in rural Nali-Kali school children, majority (46.88%) of fathers had primary education, followed by 31.24 percent had education 10<sup>th</sup> pass but less than graduation and 21.88 percent had less than primary but attended school for at least one year. In case of conventional school children, 50.00 percent of fathers had primary pass but less than 10<sup>th</sup> followed by 43.75 percent were 10<sup>th</sup> pass but less than graduation and 6.25 percent had less than primary but attended school for at least one year.

In case of urban areas, children from Nali-Kali schools, with regard to father's education it was found that majority (50.0%) of fathers had primary pass but less than 10<sup>th</sup>, followed by 37.50 percent had 10<sup>th</sup> pass but less than graduation and 12.50 percent were less than primary but attended school for at least one year. In case of conventional school children it was found that, majority (56.25%) of fathers had education 10<sup>th</sup> pass but less than graduation, followed by 43.75 percent who were primary pass but less than 10<sup>th</sup> and none of them were illiterate.

### Mother's education

With regard to mother's education in rural areas, among Nali-Kali school children, it was found that majority (43.75%) of the mothers had education 10<sup>th</sup> pass but less than graduation, followed by 31.25 percent having less than primary but attended school at least one year, 25.00 percent being 10<sup>th</sup> pass but less than graduation. Where as in case of conventional school children, 46.87 percent of mothers had education primary pass but less than 10<sup>th</sup>, followed by 40.36 percent were 10<sup>th</sup> pass but less than graduation and 12.50 percent of mothers had less than primary but attended school at least for one year.

In urban areas, among Nali-Kali school children it was found that, 50.00 percent of mothers had primary pass but less than 10<sup>th</sup>, followed by 31.25 percent were 10<sup>th</sup> pass but less than

graduation and 18.75 percent were less than primary but attended school at least for one year. Among conventional school children, 50.00 percent of mothers had education 10<sup>th</sup> pass but less than graduation followed by 43.75 percent were primary pass but less than 10<sup>th</sup> and 6.25 percent of mothers had less than primary but attended school at least for one year.

### Father's occupation

Results related to father's occupation in rural areas, among Nali-Kali school children indicated that, majority (56.25%) of fathers were in the category of service at shops, transport, own cultivation of land and 25.00 percent in the category of service in private sector/business and 18.75 percent in self-employment with less than 5000/labourer. In case of conventional school children, majority (62.50%) of fathers were in service at shops, transport, own cultivation and 37.50 percent in service in private sector/business.

In urban locality, among Nali-Kali school children, 50.00 percent of fathers were in service at shops, transport, own cultivation of land and 31.25 percent were involved in self-employment with less than 5000/labourer and 18.75 percent were in private sector/ business. In case of conventional school children, 56.25 percent of fathers were in service in private sector/ business and 43.75 percent in service at shops, transport, own cultivation of land.

### Mother's occupation

With regard to mother's occupation in rural areas, among Nali-Kali school children, 56.25 percent of mothers, were in self-employment with less than 5000/labourer/ house wives and 43.75 percent were working in service at shops, transport, own cultivation of land. In case of conventional school, mothers occupation was equally distributed i.e. 50.00 percent in service at shops, transport, own cultivation of land and self-employment with less than 5000/labourer/housewives category.

In case of urban areas, among Nali-Kali school children, majority (81.25%) of mothers were self-employed with less than 5000/labourer/housewives and 31.25 percent of mothers were in service at shops, transport, own cultivation of land. In conventional school children, 68.75 percent were involved in self-employment with less than 5000/labourer/housewives and 31.25 percent in service at shops, transport, own cultivation of land.

#### Distribution of Nali-Kali and conventional school children of rural and urban areas by cognitive abilities

With regard to levels of intelligence of children in rural and urban area of Nali-Kali and conventional schools is presented in table 2.

In case of rural areas, among Nali-Kali school children, 43.75 percent of the children fell under borderline category of intelligence followed by 31.25 percent in low average

category of intelligence and 25 percent in average category of intelligence. In case of conventional schools, 65.62 percent children fell under average level of intelligence and 28.13 percent in low average category of intelligence and 6.25 percent in borderline category of intelligence. None of the children fell under intellectual deficient category of intelligence.

In case of urban areas, among Nali-Kali school children, 50.00 percent of children fell under borderline category of intelligence followed by 31.25 percent in low average of intelligence and 18.75 percent in average category of intelligence. In case of conventional school children, majority (59.37%) of children fell under average category of intelligence, followed by 28.13 percent in low average category of intelligence and 12.50 percent in borderline category of intelligence.

**Table 2:** Frequency distribution of Nali-Kali and conventional school children in rural and urban areas by levels of intelligence N=128

Level of IQ	Rural (n=64)		Urban (n=64)	
	Nali-Kali (n=32)	Conventional (n=32)	Nali-Kali (n=32)	Conventional (n=32)
Very superior	-	-	-	-
Superior	-	-	-	-
High average	-	-	-	-
Average	8 (25.0)	21 (65.62)	6 (18.75)	19 (59.37)
Low average	10 (31.25)	09 (28.13)	10 (31.25)	09 (28.13)
Borderline	14 (43.75)	02 (6.25)	16 (50.0)	04 (12.50)
Intellectual deficient	-	-	-	-
Total	32 (100)	32 (100)	32 (100)	32 (100)

Figures in parenthesis indicate percentage

#### Influence of parental factors on cognitive abilities of Nali-Kali and conventional school children

Results related to cognitive abilities of children from rural and urban areas of Nali-Kali and conventional school children by education of the father, with respect to intelligence quotient and cognitive processes are presented in table 3 and 3 a.

The results in table 3 shows that, with respect to intelligence quotient, among Nali-Kali and conventional school children, fathers education did not show significant effect. In case of conventional school children also, father's education showed no significant effect on verbal intelligence, performance intelligence and over all intelligence.

In urban area, among Nali-Kali school, the significant difference was not observed between father's education in verbal intelligence, performance intelligence and over all intelligence. In case of conventional school also, father's education showed no effect on verbal intelligence, performance intelligence and overall intelligence.

The results in the table 3 a, shows that with respect to performance test, in rural area among both Nali-Kali and conventional school, the significant difference was not found between children father's education primary pass but less than 10<sup>th</sup> and education 10<sup>th</sup> pass but less than graduation, in verbal comprehension, perceptual organization, freedom from distractibility, processing speed.

In urban area, among both Nali-Kali and conventional school children, the significant effect was not observed between education of fathers who had education primary pass but less than 10<sup>th</sup> and education 10<sup>th</sup> pass but less than graduation in all cognitive processes of the children.

Because most of the fathers from Nali-Kali schools do not spend their time with children in learning activities. The

results are in line with the study conducted by Alfredo *et al.* (2010) [2] revealed that, parent's educational level affects verbal executive function tests than for nonverbal executive function tests. Parent's education level was correlated with verbal fluency (3%), semantic fluency (7%), non-semantic fluency (3%) and similarities (5%).

Results related to cognitive abilities of children from rural and urban areas of Nali-Kali and conventional school children by education of the mother, with respect to intelligence quotient and cognitive processes are presented in table 4 and 4 a.

The result in table 4 shows that, with respect to intelligence quotient, in rural area, among Nali-Kali school children, the significant difference was found between mothers education. Where as in case of conventional school children, whose mother's education was 10<sup>th</sup> pass but less than graduation showed higher (93.00) mean scores in verbal intelligence than those children whose mother's education was primary pass but less than 10<sup>th</sup>.

In urban area, among Nali-Kali school children, the significant difference was not seen between mothers who had education primary pass but less than 10<sup>th</sup> and mothers who had education 10<sup>th</sup> pass but less than graduation. Where as in case of conventional school children, mothers who had education 10<sup>th</sup> pass but less than graduation scored higher (99.50) in verbal intelligence than who had education primary pass but less than 10<sup>th</sup>.

Results in the table 4 a revealed that, with respect to cognitive processes, among Nali-Kali school children in rural area, the significant difference was not found between mothers education. Where as in case of conventional school children, mothers who had education 10<sup>th</sup> pass but less than graduation had scored higher (78.69) mean score than mothers who had



education primary pass but less than 10<sup>th</sup> (74.50) with the significant difference.

In urban area, among Nali-Kali school children, the difference between mothers education was not found to be significant. Where as in case of conventional school children, mothers who had education 10<sup>th</sup> pass but less than graduation scored higher (85.00) in verbal comprehension, than who had education primary pass but less than 10<sup>th</sup> (82.40). The significant difference between mothers education was found.

The results are in line with the results of the study conducted by Alfredo *et al.* (2010) [2], who revealed that, there is significant effect of type of school attended on all tests (verbal and performance test). Most of the children test scores particularly verbal test scores were correlated with parent education level. The difference in test scores between public and private, in vocabulary and children entering private schools scored about 50 percent higher than those children entering public schools. Parents' educational level affects verbal executive function tests than for nonverbal executive function tests (performance tests).

Another study conducted by Casnerio *et al.* (2011) [8] results reveal that, addition year of mothers schooling increases the child's performance on standardized maths test and verbal intelligence by almost 0.1 S.D, this shows children whose mothers had higher education scored higher in cognitive intelligence than children whose mothers education was less than primary school.

Results related to cognitive abilities of children from rural and urban areas of Nali-Kali and conventional school children by occupation of the father, with respect to intelligence quotient and cognitive processes are presented in the table 5 and 5a.

The results in table 5 shows that, with regard to intelligence quotient, among Nali-Kali school children in rural area, the significant difference was not found between fathers occupation in verbal intelligence, performance intelligence and over all intelligence. In case of conventional school children also, fathers who had occupation of business/service in shops/farmer and who had occupation of labourer did not differ in verbal intelligence, performance intelligence and over all intelligence.

In urban area, among Nali-Kali school children, there was no significant difference between fathers occupation in verbal intelligence, performance intelligence and over all

intelligence. Where as in case of conventional school children, father's occupation had no effect in verbal, performance and over all intelligence.

The results in the table 5a reveal that, with respect to cognitive, in rural area of Nali-Kali school children, there was no significant difference between fathers occupation in verbal comprehension, perceptual organization, freedom from distractibility and processing speed. In case of conventional school also children of fathers who had occupation of business/service in shops/farmer and who had occupation of labourer did not differ in verbal comprehension, perceptual organization, freedom from distractibility and processing speed.

In urban area of both Nali-Kali and conventional school children there was no significant difference between fathers who had occupation of business/services in shops/farmer and father's whose occupation as a labourer.

Results related to cognitive abilities of children from rural and urban areas of Nali-Kali and conventional schools by occupation of the mother, with respect to intelligence quotient and cognitive processes are presented in the table 6 and 6 a.

The results in table 6 show that, with regard to intelligence quotient, among Nali-Kali and conventional school children, the significant difference was not found between mothers who had occupation as housewives/labourer and farm women, in verbal intelligence, performance intelligence and over all intelligence.

In urban locality, of Nali-Kali and conventional school children, mothers who had occupation as housewives/labourer and farm women did not differ significantly in verbal intelligence, performance intelligence and over all intelligence.

The results in table 6a shows that, with regard to cognitive, in rural area, among both Nali-Kali and conventional school children, the significant difference was not found between mothers who had occupation as housewives/labourer and farm women in verbal comprehension, perceptual organization, freedom from distractibility and processing speed.

In urban area, among both Nali-Kali and conventional school children, occupation of the mother did not differ significantly in verbal comprehension, perceptual organization, freedom from distractibility and processing speed.

**Table 3:** Mean indices of intelligence of rural and urban areas of Nali-Kali and conventional school children by education of the father

Locality	Tests	Nali-Kali			Conventional		
		Primary pass but <10 <sup>th</sup> (22) Mean ± S.D	10 <sup>th</sup> pass but < graduation (10) Mean ± S.D	t-value	Primary pass but <10 <sup>th</sup> (18) Mean ± S.D	10 <sup>th</sup> pass but < graduation (14) Mean ± S.D	t-value
Rural	Verbal intelligence	84.68±7.67	84.43±6.79	1.23	93.25±11.27	93.91±10.25	1.17
	Performance intelligence	79.75±6.55	80.31±9.91	1.94	86.41±9.82	86.60±11.28	1.05
	Total Intelligence (verbal+ performance)	80.75±6.60	81.31±10.39	1.48	87.25±8.81	87.80±9.74	1.45
Urban	Tests	Primary pass but <10 <sup>th</sup> (20)	10 <sup>th</sup> pass but < graduation (12)	t-value	Primary pass but <10 <sup>th</sup> (14)	10 <sup>th</sup> pass but < graduation (18)	t-value
	Verbal intelligence	84.88±12.99	84.57±8.56	1.08	95.38±11.76	95.90 ±8.99	1.33
	Performance intelligence	79.28±8.14	80.57±11.31	1.16	89.00±8.45	89.50±17.05	1.24
	Total Intelligence (verbal+ performance)	79.84±9.97	79.57±11.04	1.23	89.16±8.16	90.00±10.12	1.32

**Table 3a:** Mean scaled scores of cognitive processes of Nali-Kali and conventional school children in rural and urban areas by education of father

Locality	Cognitive processes	Nali-Kali			Conventional		
		Primary pass but<10 <sup>th</sup> (22) Mean ± S.D	10 <sup>th</sup> pass but < graduation (10) Mean ± S.D	t-value	Primary pass but<10 <sup>th</sup> (18) Mean ± S.D	10 <sup>th</sup> pass but < graduation (14) Mean ± S.D	t-value
Rural	Verbal comprehension	72.25±7.74	72.06±9.75	1.22	81.83±8.52	83.65±17.88	1.30
	Perceptual organization	76.50±2.94	76.87±5.56	1.17	68.91±9.58	70.20±9.58	1.15
	Freedom of distractibility	92.93±9.73	92.90±14.79	1.01	99.50±10.85	101.95±13.03	1.10
	Processing speed	95.68±11.77	96.75±13.75	1.48	102.45±13.46	103.92±11.47	1.31
Urban	<b>Cognitive processes</b>	<b>Primary pass but&lt;10<sup>th</sup> (20)</b>	<b>10<sup>th</sup> pass but &lt; graduation (12)</b>	<b>t-value</b>	<b>Primary pass but&lt;10<sup>th</sup> (14)</b>	<b>10<sup>th</sup> pass but &lt; graduation (18)</b>	<b>t-value</b>
	Verbal comprehension	73.36±11.19	73.00±9.48	1.85	81.72±8.41	82.40±9.32	1.25
	Perceptual organization	68.44±7.55	69.28±6.60	1.99	73.16±6.71	73.70±7.51	1.42
	Freedom of distractibility	90.76±13.14	91.57±2.43	1.26	99.44±8.00	99.25±13.45	1.46
	Processing speed	90.84±12.62	91.14±13.28	1.15	99.16±12.54	100.50±9.85	1.18

\*Significant at 5 percent level

**Table 4:** Mean indices of intelligence of Nali-Kali and conventional school children in rural and urban areas by education of the mother

Locality	Tests	Nali-kali			Conventional		
		Primary pass but<10 <sup>th</sup> (24) Mean ± S.D	10 <sup>th</sup> pass but < graduation (08) Mean ± S.D	t-value	Primary pass but<10 <sup>th</sup> (13) Mean ± S.D	10 <sup>th</sup> pass but < graduation (19) Mean ± S.D	t-value
Rural	Verbal intelligence	80.46±5.74	80.00±4.89	1.14	90.00±5.40	93.00±6.23	2.49**
	Performance intelligence	81.43±6.73	81.00±5.28	1.13	87.42±6.74	89.33±5.02	1.39
	Total intelligence (verbal+ performance)	82.67±8.21	82.50±6.50	1.37	85.33±5.38	86.88±4.11	1.45
Urban	<b>Tests</b>	<b>Primary pass but&lt;10<sup>th</sup> (22)</b>	<b>10<sup>th</sup> pass but &lt; graduation (10)</b>	<b>t-value</b>	<b>Primary pass but&lt;10<sup>th</sup> (16)</b>	<b>10<sup>th</sup> pass but &lt; graduation (16)</b>	<b>t-value</b>
	Verbal intelligence	85.53±8.11	87.00±9.55	1.25	96.13±2.00	99.50±1.70	2.31*
	Performance intelligence	78.96±8.02	79.00±14.14	1.24	88.55±7.99	90.00±5.65	1.69
	Total intelligence (verbal+ performance)	80.03±8.49	81.00±9.79	1.46	89.33±2.92	89.00±2.82	1.45

\*Significant at 5 percent level \*\*Significant at 1 percent level

**Table 4a:** Mean scaled scores of cognitive processes of Nali-Kali and conventional school children in rural and urban areas by education of the mother

Locality	Cognitive processes	Nali-kali			Conventional		
		Primary pass but<10 <sup>th</sup> (24) Mean ± S.D	10 <sup>th</sup> pass but < graduation (08) Mean ± S.D	t-value	Primary pass but<10 <sup>th</sup> (13) Mean ± S.D	10 <sup>th</sup> pass but < graduation (19) Mean ± S.D	t-value
Rural	Verbal comprehension	73.76±8.94	74.00±7.07	1.35	74.50±7.50	78.69±15.55	2.37*
	Perceptual organization	66.83±4.00	67.50±5.19	1.23	66.92±8.94	67.16±12.41	1.31
	Freedom of distractibility	92.50±9.60	94.26±8.40	1.34	99.67±12.38	100.11±12.33	1.40
	Processing speed	99.83±9.20	100.00±10.69	1.52	93.50±11.82	94.83±16.62	1.54
Urban	<b>Cognitive processes</b>	<b>Primary pass but&lt;10<sup>th</sup> (22)</b>	<b>10<sup>th</sup> and P.U.C (10)</b>	<b>t-value</b>	<b>Primary pass but&lt;10<sup>th</sup> (16)</b>	<b>10<sup>th</sup> and P.U.C (16)</b>	<b>t-value</b>
	Verbal comprehension	73.76±8.54	74.50±10.26	1.23	82.40±10.27	85.00±1.41	2.03*
	Perceptual organization	68.33±6.92	69.00±8.14	1.28	73.53±7.08	74.00±2.82	1.14
	Freedom of distractibility	91.80±12.22	92.50±3.53	1.42	99.90±9.09	101.00±4.24	1.08
	Processing speed	90.50±5.28	90.50±4.94	1.51	98.23±10.83	100.00±1.41	1.15

\*Significant at 5 percent level

**Table 5:** Mean indices of intelligence of Nali-Kali and conventional school children in rural and urban areas by occupation of father

Locality	Tests	Nali-Kali			Conventional		
		Business/ services in shops/farmer/ (26) Mean ± S.D	Labourer (06) Mean ± S.D	t-value	Services at private sector/business (12) Mean ± S.D	Services at shops/ farmer (10) Mean ± S.D	t-value
Rural	Verbal intelligence	80.51±10.53	79.33±5.50	1.63	96.36±9.67	96.80±13.36	0.11
	Performance intelligence	78.86±8.39	77.00±7.00	1.75	86.95±11.19	86.00±7.85	1.76
	Total intelligence (verbal + performance)	78.93±8.76	78.33±4.50	1.85	91.63±8.70	91.10±10.24	1.24
Urban	<b>Tests</b>	<b>Business/ services in shops/farmer/ (22)</b>	<b>Labourer (10)</b>	<b>t-value</b>	<b>Services at private sector/business (18)</b>	<b>Services at shops/ farmer (14)</b>	<b>t-value</b>
	Verbal intelligence	86.77±13.20	84.70±10.43	1.43	100.64±12.33	99.76±9.85	1.46
	Performance test intelligence	81.40±9.45	79.95±8.76	1.16	90.52±9.46	89.00±8.31	1.74
	Total intelligence (verbal + performance)	82.70±9.45	80.75±8.67	1.35	91.63±9.99	89.80±10.15	1.86

**Table 5a:** Mean scaled scores of cognitive processes of Nali-Kali and conventional school children in rural and urban areas by occupation of father

Locality	Cognitive processes	Nali-Kali			Conventional		
		Business/ services in shops/farmer/ (26) Mean ± SD	Labourer (06) Mean ± SD	t-value	Services at private sector/business (12) Mean ± SD	Services at shops/farmer (10) Mean ± SD	t-value
Rural	Verbal comprehension	74.72±9.00	73.67±6.02	1.13	84.63±16.80	84.30±10.17	0.58
	Perceptual organization	67.31±4.57	66.00±3.00	0.48	61.77±9.82	61.20±8.32	1.27
	Freedom of distractibility	94.82±12.34	93.00±6.24	1.62	101.68±10.99	99.60±14.91	0.44
	Processing speed	95.31±12.60	94.33±10.21	1.24	100.27±12.92	98.00±10.73	1.54
Urban	<b>Cognitive processes</b>	<b>Business/ services in shops/farmer/ (22)</b>	<b>Labourer (10)</b>	<b>t-value</b>	<b>Services at private sector/business (18)</b>	<b>Services at shops/farmer (14)</b>	<b>t-value</b>
	Verbal comprehension	75.31±11.62	74.30±9.22	1.52	86.90±9.67	85.76±9.90	1.68
	Perceptual organization	68.70±5.10	68.59±8.16	1.39	64.42±7.33	63.90±7.94	1.18
	Freedom of distractibility	93.30±7.77	91.45±13.45	1.40	101.55±13.43	99.90±6.12	1.47
	Processing speed	92.40±15.02	91.18±11.74	1.25	100.05±12.15	98.90±8.01	1.77

**Table 6:** Mean indices of intelligence of Nali-Kali and conventional school children in rural and urban areas by occupation of mother

Locality	Tests	Nali-Kali			Conventional		
		Housewives/laborer (14) Mean ± SD	Farm women (18) Mean ± SD	t-value	Housewives/laborer (16) Mean ± SD	Farm women (16) Mean ± SD	t-value
Rural	Verbal intelligence	77.41±5.45	78.80±9.03	1.55	93.50±12.46	94.50±7.99	1.12
	Performance intelligence	75.41±8.13	75.25±11.91	1.47	85.87±8.57	86.68±12.38	1.01
	Total Intelligence (verbal+ performance)	79.91±6.44	80.90±9.73	1.57	90.75±11.43	91.68±6.87	0.28
Urban	<b>Tests</b>	<b>Housewives/laborer (26)</b>	<b>Farm women (06)</b>	<b>t-value</b>	<b>Housewives/laborer (22)</b>	<b>Farm women (10)</b>	<b>t-value</b>
	Verbal intelligence	78.75±6.84	78.17±6.59	1.09	90.00±6.45	90.25±7.27	1.29
	Performance intelligence	79.82±9.15	80.35±10.49	1.67	89.71±9.57	89.25±4.11	1.45
	Total Intelligence (verbal+ performance)	75.57±6.02	75.35±10.49	1.03	90.57±10.32	91.50±8.18	1.28

**Table 6a:** Mean scaled scores of cognitive processes of Nali-Kali and conventional school children in rural and urban areas by occupation of mother

Locality	Cognitive processes	Nali-Kali			Conventional		
		Housewives/labourers (14) Mean ± SD	Farm women (18) Mean ± SD	t-value	Housewives/labourers (16) Mean ± SD	Farm women (16) Mean ± SD	t-value
Rural	Verbal comprehension	55.00±3.41	56.50±4.52	1.31	77.62±9.07	78.56±7.44	1.42
	Perceptual organization	75.08±7.65	75.60±9.68	1.45	68.75±9.04	69.93±9.95	1.44
	Freedom of distractibility	88.91±5.75	89.00±14.35	1.76	98.56±9.68	100.50±14.06	1.16
	Processing speed	94.08±12.37	95.10±12.86	1.12	103.44±13.99	102.56±11.45	0.19
Urban	<b>Cognitive processes</b>	<b>Housewives/labourers (26)</b>	<b>Farm women (06)</b>	<b>t-value</b>	<b>Housewives/labourers (22)</b>	<b>Farm women (10)</b>	<b>t-value</b>
	Verbal comprehension	66.00±5.47	67.57±6.98	1.19	82.89±6.28	83.75±6.24	1.02
	Perceptual organization	58.71±7.61	58.00±4.69	0.18	64.50±7.76	62.50±4.79	0.49
	Freedom of distractibility	92.03±12.37	92.00±8.83	0.06	100.89±9.62	97.50±3.31	0.69
	Processing speed	91.60±12.92	91.25±12.01	0.52	98.35±11.08	103.25±9.39	0.83

**Conclusion**

The findings of the study indicated that, in both rural and urban areas, children from Nali-Kali and conventional schools, it was observed that, in Nali-Kali and conventional schools of both rural and urban areas, father’s education did not showed much difference in cognitive abilities of children. Whereas mother’s who had higher education their children scored higher in verbal intelligence. In rural and urban areas of Nali-Kali and conventional school, father’s occupation showed no difference in cognitive abilities. In case of mother occupation in rural and urban areas of Nali-Kali and conventional school, mother’s occupation showed no difference in cognitive abilities of the children.

**References**

- Aggarwal OP, Bhasin SK, Chhabra P, Aggarwal K, Rajoura OP. A new instrument scale for measuring the socio-economic status of the family: Preliminary study. Indian J Community Med. 2005;30(4):2-4.
- Alfredo A, Roselli M, Matute E, Guajardo S. Influence of the parents' educational level on the development of executive functions. Dev. Neuropsychol. 2010;28(1):539-560.
- Alloway TP, Alloway RG. Investigating the predictive roles of working memory and IQ in academic attainment. J Exp. Child Psychol. 2009;106(5):20-29.
- Bacanl H. Cognitive development in school children. Child Dev. 2004;56(3):22-29.
- Burner. The course of cognitive growth. Am Psychol. Assoc. 1966;19(1):1-15.
- Burger K. How does early childhood care and education affect cognitive development? Early Childhood Res Q. 2003;25(9):140-165.
- Carlson SM, White RE, Unger AD. Evidence for a relation between executive function and pretense representation in preschool children. Cogn Dev. 2000;20(14):29-36.
- Casnerio P, Meghir C, Parey M. Maternal education,

- home environment and development of children. *J Am Psychol.* 2011;95(2):112-118.
9. Castillo R, Ruiz JR, Chillón P, Pavón DJ, Díaz LE, Luis AM, *et al.* Associations between parental educational/occupational levels and cognitive performance in Spanish children: The AVENA study. *Psicothema.* 2011;23(3):349-355.
  10. Daviskean PE. Parent education and family income on child achievement: the indirect role of parental expectation and home environment. *J Family Psychol.* 2010;19(2):294-304.
  11. Diamond A, Barnett WS, Thomas J, Munro S. Preschool program improves cognitive control. *J Sci.* 2010;318(30):1387-1413.
  12. Dodge D, Colker K, Heroman C. Creative curriculum for cognitive development in children. *Early Childhood Res Q.* 2002;11(3):12-19.
  13. Domitrovich CE, Cortes RC, Greenberg MT. Improving young children's social and emotional competence: a randomized trial of the preschool PATHS curriculum. *J Primary Prevention.* 2011;28(2):67-91.
  14. Dunn J, Munn P. Becoming a family member: Family conflict and the development of social understanding in the second year. *Child Dev.* 2005;56(5):480-492.
  15. Eliersten T, Thorsen LAA. Thomas. Parental socioeconomic status and child intellectual functioning in a Norwegian sample. *J Soc. Sci.* 2016;23(4):28-36.
  16. Flook L, Goldberg SB, Pinger L, Davidson RJ. Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum. *Dev. Psychol.* 2015;51(1):44-51.
  17. Garkal KD, Shete AN. Influence of nutrition and socioeconomic status on intellectual development in school children. *Dev. Psychol.* 2015;5(3):145-148.
  18. Gowda K, Kochar A, Nagbhushan C, Raghunathan N. Curriculum change and early learning: An evaluation of an activity-based learning program in Karnataka, India. *Centre International Develop.* 2013;121(2):110-128.
  19. Hall J, Sylva K, Edward D, Pam D. The role of preschool quality in promoting cognitive development of young children. *Early Childhood Res Q.* 2011;28(03):114-121.
  20. Nobert S. Parents' education, mothers' vocabulary, and cognitive development in early childhood: a longitudinal evidence from Ecuador. *J American Psychol.* 2011;52(12):123-132.
  21. Oliva A, Olabarriets F, Martín JL, Manozano A. Quality of family context or sibling status? Influences on cognitive development. *Early Child Dev.* 2016;6(1):1.12.
  22. Peter MK. A study of cognitive abilities of lower primary school pupils, in Igembe Central Division of Igembe District, Kenya. *Mediterr. J Soc. Sci.* 2014;5(5):175-189.
  23. Phillips. The effects of universal pre-k on cognitive development. *Dev. Psychol.* 1978;41(6):872-884.
  24. Piaget. Cognitive development in children. *J Child Dev.* 1970;16(3):102-122.
  25. Piccolo LR, Arteché AX, Fonseca RP, Oliveria RG, Salles MG. Influence of family socioeconomic status on IQ, language, memory, and executive functions of Brazilian children. *Psicologia. Reflexao. Critica.* 2016;29(1):1-10.
  26. Pouget E, Serbin LA, Stack DM, Schwartzman AE. Fathers' influence on children's cognitive and behavioral functioning: A longitudinal study of Canadian families. *Canadian Psychol. Assoc.* 2011;43(3):173-182.
  27. Reddy DD. School attendance and early cognitive development: the differential effects of school exposure. *J Soc Sci.* 2010;83(4):221-232.
  28. Schonert KA, Oberle E, Lawlor MS, Abbott D, Thomson K, Oberlander TF, *et al.* Enhancing cognitive and social-emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial. *Dev. Psychol.* 2015;51(1):52-66.
  29. Sills J, Rows G, Emerson L. The role of collaboration in the cognitive development of young children. *J Early Childhood Res.* 2014;86(2):121-128.
  30. Wechsler D. Manual for Wechsler's Intelligence Scale for Children. *Psy. Corporation.* 1974;5(2):12-19.
  31. Ziv YA. Social information processing in preschool children: Relations to socio-demographic risk and problem behavior. *J Exp. Child Psychol.* 2013;109(4):412-429.