RELATIONSHIP BETWEEN INTELLIGENT QUOTIENT AND KINESTHTIC INTELLIGENCE IN ACCORDANCE WITH HIGH ACADEMIC ACHIEVERS AND LOW ACADEMIC ACHIEVERS

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ABSTRACT: *The purpose of this study was to find out relationship between intelligent quotient and kinesthetic intelligence in accordance with high academic achievers and low academic achievers.Academic achievement is an important aspect in the life of a child. The success or failure of a student is measured in terms of academic achievement. High achievement in school builds self-esteem, self-confidence and strengthens self-efficiency and belief that leads to better adjustment with the groups. Good academic record to a certain extent predicts future of the child. Kinesthetic sense is measure of kinesthetic intelligence. In other words kinesthetic sense is one of the mean to asses to kinesthetic intelligence. The study and measurement of Intelligence has been an important research topic for nearly 100 years. Intelligence is what people use to learn, remember, solve problems and in general deal effectively with the world around them. To fulfill the demand of the study 1500 school students (750 male and 750 female) of SAS Nagar, Panchkula and Chandigarh were selected. As Kinesthetic is the sense of position, location and orientation so, it was measured by kinesthetic obstacles test and for intelligent quotient pramila group intelligence test was used. Mean difference between genders for all selected parameters was assessed in terms of independent sample t-test. To compare the difference between cities test of variance Analysis of variance ANOVA (one way) was applied with post-hoc multiple comparisons. To establish relationship between study parameters; intelligence quotient and bodily-kinesthetic intelligence Pearson's co-relation co-efficient was used. For all the inferential statistics level of significance was taken as 0.05.*

Key Words:

Intelligence is a very general mental capability that, among other things, involves the ability to reason, plan, solve problems, think abstractly, comprehend complex ideas, learn quickly and learn from experience. It is not merely book learning or a narrow academic skill. Rather, it reflects a broader and deeper capability for comprehending our surroundings.

In general sense, intelligence means the ability to learn from experience and to deal with new situation and also the ability to deal effectively with the task of involving expressions. Voluminous research in the field of education and psychology has led to the belief that intellectual superiority of an individual is the most important determinant in the field of academic performance. Intelligence paves a way for brilliance in academics. The concept of intelligence has been defined in various ways.Binet (1905) holds that essential characteristics of intelligence include the ability to judge well, to comprehend well and to reason well.

The term *academic* has been derived from the term *academy* which means a school where special types of instructions are imparted. Academic achievement has been assessed in a variety of ways such as Grade Point Average (GPA), performance on standardized tests such as the Stanford Achievement Test (SAT), the Science Research Associate Test (SRA) and scores on essay type examination etc. In many studies, performance in various courses such as mathematics, reading and other areas has been linked with yet another aspect of performance in the classroom, the verbal behavior of high and low achieving children. Academic achievement is the core of a wider term i.e. educational growth and plays on important role in the life of a child. High academic achievement in the school builds self-esteem and self-confidence which leads to better adjustment with the group. Achievement encompasses enhancement, self actualization, self-improvement and some form of competitiveness (Maslow, 1954).Student achievement scores have often directly linked to student promotions. The logic behind this focus on tests is firmly based on the presumed validity of achievement tests to reflect actual student learning; a validity, which is considered questionable by some. Despite the fact that questions remain regarding these tests reflecting actual learning, the emphasis on test scores continues and leads almost invariably to the counterproductive phenomenon of teaching to the test". While studies of achievement scores indicate a general increase in scores reflecting

basic skills, scores on tests requiring inferential skills have declined or remained the same". Although theorists through the history of formal education have suggested methods for addressing individual differences, the reality is that practices of teaching have remained fixed. Within narrow educational systems, students must adapt to the learning environment. While most are successful within the traditional systems, there are those who struggle to achieve.If cognitive abilities is not a part of teacher's perception of intelligence, then students who are strong in intelligence areas other than linguistic, logical and mathematical may have limited or no opportunities to learn and exhibit their knowledge through their areas of strength. Learning methods also contribute to one's academic success. What a student learns depends up on his learning method. Students think and learn in many different ways. It also provides educators with a conceptual framework for organizing and reflecting on curriculum assessment and pedagogical practices. In turn, this reflection has led many educators to develop new approaches that might better meet the needs of the range of learners in their classrooms.

Learning new information can occur easily or may require great effort. Many factors influence success and acquisition of new skills. Learning requires attentions, concentration and effort but some things are learned more easily than others are. An assessment can help the student to identify his abilities, which is the basic thing he requires for success.The obsession of Indian parents with high marks and high percentage in board exams is legendary. Leave children free to grow and nurture their capabilities and passion for becoming great human beings and building up a better society. Trust in them and hope that they can be winners and they will be. Without recognizing their abilities, teachers simply degrade them. Automatically they will drop out of school. Sometimes they would not get the opportunity to exhibit their abilities in school. They may stop their studies and be labeled as school dropouts. Studies conducted and proved in India among that, out of twenty, nineteen are low achievers.

METHOD AND PROCEDURE

The random sample technique was used to select 1500 school students (750 male and 750 female) of SAS Nagar, Panchkula and Chandigarh. The age of the students was between 10 to 13 years.To find out the intelligent quotient of students Pramila group test of intelligence was used to assess general intelligence of school children. In the questionnaire there are seven sub tests in the test book let. The first one is a practice test containing 10 very easy items. The performance in the practice test is not to be taken into account. This fact was not revealed to the students'. The remaining six sub-tests from 1 to 7 are the tests proper. For every test, one page has been devoted for instructions and practice examples. Directions for taking the test are printed on the test booklet. Answers were to be marked on the separate answer sheet provided. While undergoing the test students can indicate, the right answers by marking (x) in the space corresponding to the correct answer in the separate "answer sheet" Provided. If the student at any time made a mistake, they were asked to put a circle around the cross and mark the correct answer space. When tests began, students were not allowed to ask any doubts. They were instructed, when to begin and when to stop the test. The following is one of the example question:

Test Problems

1. O-S-M-E-U

A. Mouse B. Usage C. Enemy D. Ounce E. Sound

These letters are to be arranged in such a way that a sensible word is formed. Look at the five possible answers which are at A, B, C, D and E. The correct answer is at A. On the answer sheet in the space meant for TEST 1. Put a cross and mark the answer A.

Academic achievement Averages of the marks obtained in the terminal examinations were considered as index of academic achievement. Core subjects (English, Hindi, Mathematics, Science, Social Studies) were only taken into consideration.

Grade	Marks (%)
A	80-100
B	60-80
C	40-60
D	33-40
E	<33

Fig.1. Distribution of students according to grade in academic performance.

Subjects	PT 1 (10)	NBS 1 (5)	SEA 1 (5)	Term - 1 (80)	Total Marks (100)	Grade
English	7	4.5	4.5	53	69	B2
Hindi	9.5	4.6	4.5	70	88.6	A2
Mathematics	8	4.5	3	71	86.5	A2
Science	9.5	4.5	3	63	80	B1
S .Science	10	4	4	56.5	76.5	B1

Fig.2. Sample of report card.

Kinesthetic intelligence of the boys and girls were tested with the help of kinesthetic obstacle test Back ground information's were collected through questionnaires.
Objective: to measure ability to predict position during movement without the use of the eyes.
Age and Sex: Age 10 above and satisfactory for both boys and girls.
Reliability and Validity: .30 for female, .53 for male and without the use of eyes, there is obvious face validity.
Equipment and materials: 12 chairs (or similar objects), material for blindfolds, chalk markers or a tape marker and tape measures.
Directions: Arrange 12 chairs in accordance with the floor pattern. Each performer is allowed one practice trial walk through the course without a blindfold and one walk through the course blindfolded for a score. **Scoring**: The performer scores 10 points for each station he successfully clears without touching. There are 10 stations for a maximum score of 100 points **Penalty:** (a) there is 10 point penalty for touching any part of the body against any part of a chair. When such a penalty occurs, the performer is directed to the center line and one step ahead of the station where the penalty occurred. (b) There is 5 point penalty for each occurrence of getting outside of the line or pattern of the chairs, upon such occurrences, the performer is directed back into the center of the pattern at the nearest point which he went astray. **Additional points:** (a) the dotted line merely shows the ideal walking path and need not be drawn on the floor. (b) The two outside lines are boundary lines and should be indicated on the floor, (c) further experimentation with scoring systems is needed, since the reliability of the test was found to be quite low.

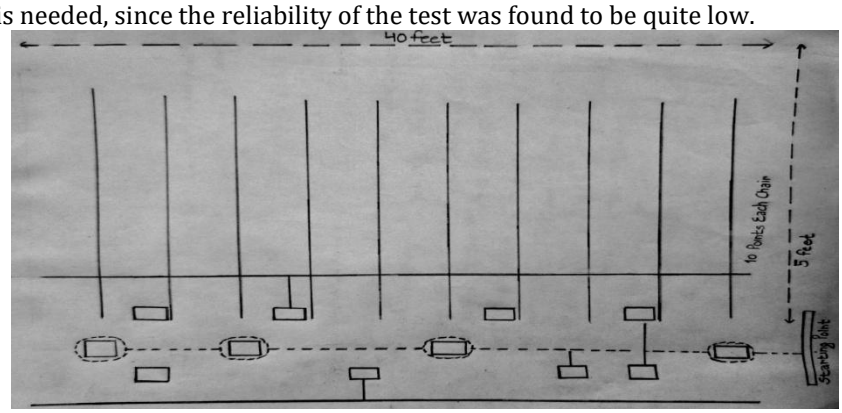

Fig.3.Equipments and materials

RESULTS AND DISCUSSION

Academic Level	N	Academic performance		Intelligent quotient		r-coefficient
		Mean	SD	Mean	SD	
Low	66	35.21	3.49	29.56	4.92	0.501**
Average	825	64.23	10.91	59.57	12.45	0.867**
High	609	88.41	4.59	86.21	7.27	0.756**

**. Significant at the 0.01 level

Fig.4. Relationship between academic achievement and intelligent quotient according to academic level of students

The relationship between academic performance and Intelligent Quotient of school children according to academic level is tabulated in fig 4. In terms of Academic performance, mean of students with high academic level (M- 88.41) was highest and lowest in children with low academic level (M- 35.21). For Intelligent Quotient, students with high academic level (M- 86.21) recorded the highest mean followed by students with average academic level (M- 59.57). Large r co-eff was found in low (r co-eff- 0.501), average (r co-eff- 0.867), and high (r co-eff- 0.756) academic levels.

Academic Level	N	Academic performance		Kinesthetic intelligence		r- coefficient
		Mean	SD	Mean	SD	
Low	66	35.21	3.49	58.26	13.19	0.054
Average	825	64.23	10.91	66.93	13.86	0.230**
High	609	88.41	4.59	74.01	13.91	0.065

**. Significant at the 0.01 level

Fig.5. Relationship between academic achievement and Kinesthetic intelligence according to academic level of students

The relationship between Academic performance and Kinesthetic Intelligence of school children is shown in Table 4.29. While considering Academic performance, average of students who had high academic level (M- 88.41) was highest. The lowest academic performance mean was found in students with low academic level (M- 35.21). In terms of Kinesthetic Intelligence, students with high academic level (M- 74.01) recorded the highest mean followed by students with average academic level (M- 66.93). Little or no relationship between academic performances was found in students with low (r co-eff- 0.054) and high (r co-eff- 0.065) academic level. However, weak relationship was found between academic performance and Kinesthetic Intelligence in students who had average academic level (r co-eff- 0.230).

Relationship between academic achievement and intelligent quotient vary according to academic achievement level of students. Almost moderate positive significant correlation coefficient(r = 0.501) was calculated for low achievers. But strong positive significant correlation coefficient was found for average(r = 0.867) and high(r = 0.756) achievers. Whereas very weak to weak positive relationship was observed between academic performance and kinesthetic intelligence. No or very low(r = 0.054) relationship was witnessed among low achievers. Average achievers showed moderate positive significant(r = 0.230) relationship. Even high achievers had very weak correlation coefficient (r = 0.065) for academic performance and Kinesthetic intelligence.

CONCLUSION

Weak to moderate positive relationship was visible between intelligent quotient and kinesthetic intelligence of school students. Intelligent quotient of all students was moderately(r = 0.337) related to kinesthetic intelligence. Among all cities Chandigarh confirmed moderate positive co-relation(r = 0.389) along with SAS Nagar(r = 0.324). Weak positive association was observed in Panchkula where mean intelligent quotient(M- 70.59) and kinesthetic intelligence (M-70.87) were maximum. Mean kinesthetic intelligence among students vary significantly (p-0 .000; p<0.05) according to their academic achievement. Low achievers had minimum kinesthetic intelligence (M-58.26) whereas high achievers had maximum kinesthetic intelligence (M-74.01). Multiple comparisons according to achievement level were found significant for every pair.

Academic achievement of students was significantly (p-0.000; p<0.05) affected due to kinesthetic intelligence. The average academic achievement enhanced according to level of kinesthetic intelligence. Students having poor kinesthetic intelligence achieved minimum score (M-62.56) and maximum academic score(M-79.51) was noticed among students having excellent kinesthetic intelligence. Large variance in mean intelligent quotient according to academic achievement level of students produced highly significant (p-0.000; p<0.05) results in the study. The mean intelligent quotient of low (M-29.56), average (M-59.57) and high (M-86.21) scorers was significantly different from each other in multiple comparison post-hoc test.

Inversely, the academic achievement of students improved according to Intelligent quotient level of students significantly (p-0.000; p<0.05). Average academic score of mentally defective was minimum (M- 58.74) whilst students with normal or average intelligent quotient were maximum scorers(M-93.55).

The Kinesthetic Intelligence of students was positively and significantly different between high and low academic achievers. The Kinesthetic Intelligence was least among low achievers, improved further among average achievers and most among high achievers. Conversely mean academic achievement improved significantly with ascending level of Kinesthetic Intelligence. Both high and low achievers had very weak positive but non-significant correlation between academic achievement and Kinesthetic Intelligence. The study results revealed positive and significant different between high and low academic achievers related to

intelligent quotient. The average intelligent quotient was significantly increasing with academic achievement of students. On the contrary academic achievement of students improved significantly according to their intelligent quotient classification. The correlation coefficient stated borderline moderate positive significant relationship among low achievers but strong positive significant relationship between academic achievement and intelligent quotient.

The average kinesthetic intelligence of students increased parallel to their academic achievement. Significant results guided disparity in kinesthetic intelligence according to academic achievement of school students. High scorers had maximum mean kinesthetic intelligence. The mean academic achievement of students improved significantly in relation to kinesthetic intelligence level. Significant increase in mean academic achievement was seen with kinesthetic intelligence (poor to excellent).Nearly no relationship between academic achievement and kinesthetic intelligence was proved by correlation coefficient for low and high achievers. But significant weak relationship was observed for average achievers. The mean intelligent quotient had increasing trend according to academic achievement of students. The significant F-ratio advocated large variation in intelligent quotient of students on the basis of their academic achievement. All the paired comparisons had significant mean difference in post-test.Even the Academic achievement of students increased significantly according to their intelligence level classification. The increased academic performance for improved intelligent quotient also provided evidence for their positive relationship. Correlation coefficient characterized moderate to strong association between academic achievement and intelligent quotient in relation to academic achievement level of school students. Marginally moderate positive coefficient was seen in low achievers and significant strong positive relationship was established for average and high achievers.

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