Towards a mission to create Superior Learners World Cognition Project in Bhavan Vidyalaya School, Chandigarh a pilot study

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Abstract:

The in hand research study proposes the evaluation of cognitive abilities particularly Intelligence Quotient, Focus Factor, Decision making ability and Creative Quotient of an esteemed educational institute, Bhavan Vidyalaya school in Chandigarh. In-depth study was conducted on a sample of 52 students of the school. At initial stage, Test-1 was conducted on a sample of 52 subjects. In the second phase, 30 days of customized training (IPCT-1) was provided to the subjects. Third phase included Monthly Monitoring of QIMI. In the fourth phase, next 30 days of customized training (IPCT-2) was provided to the subjects. Fifth phase included Monthly Monitoring of QIM2. In the next phase, another 30 days' customized training (IPCT-3) was provided to the subjects. The seventh phase included Monthly Monitoring of QIMI. Monthly Monitoring of QIM3. Tracker test for first quarter was conducted on subjects and finally the data were analyed. To make the inferences lucid, the sample was divided into two groups: Group A and Group B. After the assessment of customized solutions of the students for three months, they were categorized on the basis of the regular completion of the task sheets. Those having attempted over 75% of the tasks given were called as Group A, while rest of them were taken for Group B. The results indicated that the increase in IQ, FF,DMA and CQ of the students in Group A was quite higher than that of Group B.

Keywords: *Bhavan Vidyalaya, Cognitive development, Academic Achievement*

I. INTRODUCTION

Bhavan Vidyalaya school in Chandigarh is managed by Bhartiya Vidya Bhavan. Chandigarh based Bhavan Vidyalaya was founded on 17 July 1983 and is affiliated to CBSE. Bhartiya Vidya Bhavan manages over 123 schools in India with total strength of more than 2 lakh students. According to the All India Survey of Schools conducted by Education World 2012, Bhavan Vidyalaya Chandigarh was ranked 42nd in All India Ranking of Schools and it has got 4th rank in academic reputation. Bhavan Vidyalaya Junior, located in the heart of the city began its independent functioning in July 2010. The school has a strength of over 900 students from class Pre-Nursery to class V. The school adheres to the philosophy of Bharatiya Vidya Bhavan and aspires to prepare socially and morally conscious citizens with their feet firmly rooted in the Indian culture and tradition.

Academic achievement indicates how much knowledge and skills an individual has obtained in various school subjects. It can be defined as excellence in all academic disciplines, in class as well as extracurricular skills, punctuality, assertiveness, arts, culture and the like. The whole system of education revolves around the academic achievement along with the holistic development of each being. Thus, to maximize the achievement within a given set of conditions has become the realistic goal of education. It is generally agreed that one of the main objectives of education is to realize the potential of every individual child, however, there are children of all ability levels who for various reasons, fail to reach their full-development and do not attain the scholastic level expected from the majority of their contemporaries. It has been observed that among children of exceptionally high intellectual ability many not only fail to reach the academic level of which they are capable but quite often their school performance is consistently lower that of their average ability peers. This brings to the terms academic under achievement or over achievement. In underachievement the individual is performing below his tested capacity. Education is a persistent feature characterizing all human societies. In broad sense, it aims at all round development of personality of child. In other words education aims at harmonious development of cognitive, affective and psychomotor domains. Various activities carried out in school contribute in shaping the personality of child. Apart from this, the various activities of school are organized so that student's academic achievement. In addition, study habits refer to the activities carried out by learners during the learning process of improving learning. Study habits are intended to elicit and guide one's cognitive processes during learning. A great deal of research literature provides an evidence that cognitive abilities, natural learning style, study habits and study attitudes are significant variables which determine the academic performance of students (Boehler et al, 2001; Riaz et al, 2002; Hussain, 2006; Crede and Kuncel, 2010 and Ogunyemi and Hassan, 2011). Consequently, the need to improve student's study habits and attitudes is deemed necessary to improve student's academic achievement.Gardner (1983) has proposed that intelligence is not unitary but rather comprises eight Multiple Intelligences: Bodily-Kinesthetic, Interpersonal, Intrapersonal, Verbal-Linguistic, Logical-Mathematical Intelligence, Spatial, Musical and Naturalistic Intelligences. Each of these Intelligences is a distinct module in the brain

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and operates more or less independently on others. Armstrong (1987) described about the Multiple Intelligences and suggested ways of helping children to learn more intelligently. He focused the parents and suggested the various techniques and methods to teach children efficiently based on Multiple Intelligence concepts. Gardner and Hatch (1989) discussed about the educational implications of the theory of Multiple Intelligences. In this, Gardner opposed the practices of traditional education system that typically place a strong emphasis on the development and use of Verbal and Mathematical intelligences. They proposed that Educators should recognize and teach at a broader range of talents and skills. McPhail, et al. (2000) conducted a study on the interest in fostering student's identities at sixth Grade. The paper is based on the combined works of John Dewey and Jerome Bruner, provide a frame work spanning a century of educational thought which can inform curriculum decisions concerning student's educational development, especially for middle school students whose warning of motivation toward school has been well documented by researchers and has long concerned parents and teachers. In this article, they discussed to study of a team- taught double classroom of sixth Grade students whose interests were determined through a series of brainstorming sessions, and individual and focus group interviews. Student's interests were found to be effective tools for informing curriculum decisions in the creation of sixth Grade learning contexts. Das (2010) conducted a study on the relationship between Multiple Intelligences and achievement in chemistry of higher secondary students. From the present study it is observed that there were no relationship between dimensions of Multiple Intelligences and achievement in chemistry, except for Logical-Mathematical Intelligence. Spinatha (2006) reported that general cognitive ability proved to be the strongest and only predictor on academic achievement. The term 'Academic Achievement' is said to be the coinage of the great Greek Philosopher, Plato, according to whom "Academic achievement means the attainment level, at which a student functions in his or her school task through a regular curriculum in a fixed place to which he named as the academy." Achievement ordinarily means actual ability whereas capacity means potential ability. Nanda et al. (1994) studied the effect of cognitive style and creativity on academic achievement by taking a sample of 550 students and found that rural students were significantly less intelligent and academically less aspirant than the urban students; intelligence and academic aspiration correlated positively with scholastic success of both rural and urban students and this positive nature of correlation was statistically significant. Witkin et al. (1977) made a longitudinal study entitled role of field dependent and field independent cognitive style in academic evolution with the purpose to assess hypotheses derived from field dependence theory about the role of cognitive style in student's academic achievement. The result of the study revealed that cognitive style was significantly related to specialized areas in school achievement. Duggar (1985) compared the effects of two contrasting instructional approaches representing the field dependence-independence cognitive dimension on mathematical problem solving performance and found significant difference in the mathematics problem solving post test and gain scores of two treatment groups receiving field dependent and field independent instructions over the control group. The conclusion supported the assumption that the field dependence-independence cognitive dimension applied to teaching improves the students' performance in mathematics problem solving ability. Paul (1986) conducted a study of cognitive style of high school students of home science in relation to age and achievement. The objective of the study was to study the relationship between cognitive style and their achievement in home science and found that cognitive style was positively and significantly correlated with achievement in home science. National development largely depends upon the literacy rate and quality of education that is accessible to its students. Qualitative education is fundamental to whole process of human development as it empowers the individuals to become self-reliant so that they can contribute optimally in the development of the nation. As laid down in the National Policy on Education (1986) the union government has the responsibility to reinforce the national and integrative character of education and to maintain its quality and standards up to mark. Naderi (2010) found that success in education is not only essential for furthering one's own education but also ensures a more educated and productive society. Therefore formal education, as Garikai (2010) viewed, remains the vehicle for socio-economic development and social mobilization of any society. Acquaintance of the fact could not be refuted that academic achievement is affected by a plethora of variables. Asthana (2011) opined that mental ability plays vital role in academic success of the students. Fahim (2007) suggested that dominant intelligences are strongly related to academic achievement. Chowdhary (2007) reported that self-efficacy plays a significant role in determining high level of academic achievement. Highly successful persons in academics are considered to be responsible to bring and maintain advancement of the society. Salami (2010) opined that academic success is the major goal of the school students for it has always been used as the main basis to judge the potentialities and capabilities and also as a means for selection for educational advancement. Muola (2010) viewed that everybody in this world strives to be successful. Academic achievement is a multidimensional activity. Furnham et al. (2004), Chaturvedi (2009), Asthana (2011) and Sharma et al. (2011), suggested that intelligence, personality, learning method, school environment, home environment and motivational variables are responsible for total academic performance. Chaudary (2004) suggested that academic achievement is the knowledge attained or skills developed by pupils usually in schools, measured by test scores or by marks assigned by teachers pertaining to school subjects or to fields of liberal arts or to sphere of ideas and abstractions. Rajamnickam and Vasanthal (1993) stated that scholastic achievement means achievement of the students in terms of marks in the examination. Academic achievement become evident as a student evolves into a resourceful and enthusiastic learner who is ultimately capable. Generally speaking academic achievement is something that students achieve at school, college or university in class, laboratory, library or field work. It does not include other achievements in sports or music. It requires dedication, sacrifice, self-discipline, motivation and cordial relationship with parents, peers and teachers. Crow and Crow (1969) described

scholastic achievement as the extent to which a leaner is profiting from instructions in a given area of learning hence achievement is reflected by the extent to which skills and knowledge has been acquired by the person from the training imparted to him. According to Sharma et al. (2011) academic achievement is the outcome of the training imparted to students by the teacher in school situation. Academic success predictors usually consist of cognitive measures pertaining to mental ability or intelligence or intellectual ability. Some investigators such as Asthana (2011), Sharma et al. (2011) and Lounsbury (2004) hold the view that cognitive abilites are major determinants of achievement of college students. Lounsbury et al. (2004) explored that cognition predicted academic achievement. Spinatha (2006) and Rohde (2006) focused that general cognitive ability continued to add to the prediction of academic achievement. Fahim (2007) reported that verbal intelligence is strongly related with academic achievement. Asthana (2011) suggested that mental ability was positively and significantly related with academic achievement. Academic achievement as mentioned in ColinQs English Dictionary (2005) is excessively concerned with intellectual matters and lacking experience of practical affairs. Intelligence is said to be the robust factor that determines academic achievement. In current years, several researchers have shown more interest in the relationship between intelligence and academic achievement. Dhall (2005) and Asthana (2011) opined that intelligence has positive and significant relationship with academic performance. Watkins (2007) believed that intelligence has casual influence on future achievement. Whereas Stump et al. (2009) and Naderi (2010) stated that intelligence has no relationship with academic achievement. Laidra et al. (2007) reported that studentsQ achievement relies more strongly on their cognitive abilities through all grade levels. The gap in academic achievement is due to the variance in studentsQ cognitive ability, achievement motivation, attitude and interest towards the subjects that have direct influence on the academic achievements. Tucker et al. (2002) opined that motivation is an academic engagement that refers to cognitive, emotional and behavioural investment in education. It is documented by the researchers that a strong sense of motivation, typically in combination with other ability factors such mental ability or cognitive ability, can be powerful predictor of academic success. Al-Shabatat et al. (2010) explained motivation in terms of general energizing process that triggers responses in individuals. Yekovich (1994) explored that Intelligence has been defined and studied under a number of different rubrics, among them individual differences, cognitive abilities, and aptitudes. Probably the most influential developments in our recent understanding of these concepts have come from educational and psychological researchers associated with cognitive psychology. Researches have been conducted to establish the correlates of educational success. Rao (2000) studied that results while occasionally varied have continued to support the conclusion that cognitive ability factors, certain personality traits and some environmental factors predict academic performance of students.

II. METHOD

The first step included sample selection and then, rapport was formed with the subjects. The subjects were tested twice.

2.1 Stages of Study

Phase-1 At initial stage, Test-1 was conducted on a sample of 52 subjects.

Phase-2 In the second phase, 30 days of customized training (IPCT-1) was provided to the subjects.

Phase-3 Third phase included Monthly Monitoring of QIMI.

Phase-4 In the fourth phase, next 30 days of customized training (IPCT-2) was provided to the subjects.

Phase-5 Fifth phase included Monthly Monitoring of QIM2.

Phase-6 In the next phase, another 30 days' customized training (IPCT-3) was provided to the subjects.

Phase-7 The seventh phase included Monthly Monitoring of QIMI.

Phase-8 Monthly Monitoring of QIM3.

Phase-9 Tracker test for first quarter was conducted on subjects.

Phase-10 Analysis of data.

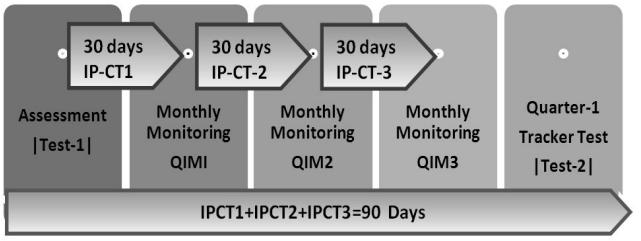


Fig 1: Design of the Research work

2.2 Participants

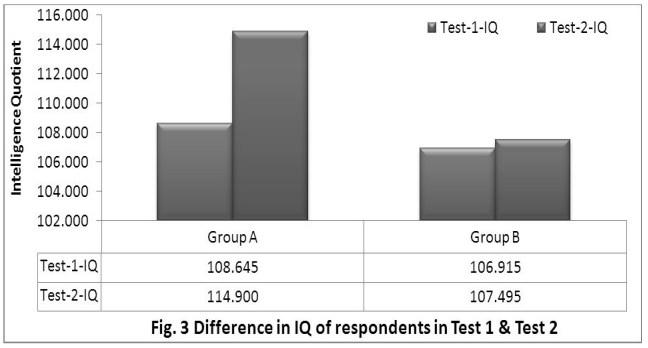
Table 1: Details of the participants

UID	Name	Age	Grade	UID	Name	Age	Grade
2918	Udayaveer	9	4A	2944	Manasvi	9	4B
2919	Raghav	10	4A	2945	Aryan	10	4B
2920	Abhiruchi	9	4A	2946	Dhruv	9	4B
2921	Rehmat	10	4A	2947	Delisha	9	4B
2922	Anvi	9	4A	2948	Shourya	10	4B
2923	Madhuwanti	9	4A	2949	Yashdeep	10	4B
2924	Soham	10	4A	2950	Ansh	10	4B
2925	Adhiraj	9	4A	2951	Divij	9	4B
2926	Siddesh	9	4A	2952	Anwita	9	4B
2927	Darsh	10	4A	2953	Bhavya Kapoor	10	4B
2928	Japjot	8	4A	2954	Saksham Sharma	9	4B
2929	Abnner	9	4A	2955	Palisha	9	4C
2930	Moksh	10	4A	2956	Jasmeet	9	4C
2931	Lakshay	9	4A	2957	Vedaant	9	4C
2932	Ishaan	9	4A	2958	Pranjal	9	4C
2933	Kriti	10	4A	2959	Aarna	10	4C
2934	Navya	10	4A	2960	Aananya	9	4C
2935	Bhavya	9	4A	2961	Achitya	9	4C
2936	Dhruv	9	4A	2962	Shaleen	9	4C
2937	Kanishka	10	4A	2963	Gautam	9	4C
2938	Saksham Tyagi	10	4A	2964	Diksha	9	4C
2939	Arjun	10	4A	2965	Bikram	9	4C
2940	Aditya	9	4A	2966	Keerat Pal	10	4C
2941	Anushthan	10	4B	2967	Hersh Veer	10	4C
2942	Arushi	10	4B	2968	Siraaj	9	4C
2943	Harnoor	10	4B	2969	Deepali	9	4C

2.3 Segregation of the Sample into Group A and Group B

Once the data was obtained, it was coded, tabulated and analyzed, keeping in mind the objectives of the study. Appropriate statistical tools were used to draw meaningful inferences. To make the inferences lucid, the sample was divided into two groups: Group A and Group B. After the assessment of customized solutions of the students for three months, they were categorized on the basis of the regular completion of the task sheets. Those having attempted over 75% of the tasks given were called as Group A, while rest of them were taken for Group B.

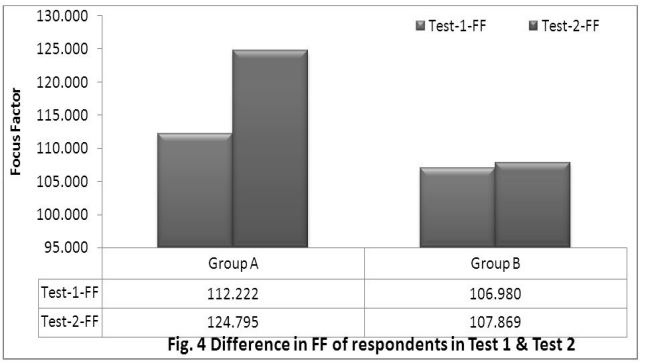
III. RESULT AND DISCUSSION



	Group A	Group B
Test-1-IQ	108.645	106.915
Test-2-IQ	114.900	107.495

Fig. 3 Difference in IQ of respondents in Test 1 & Test 2

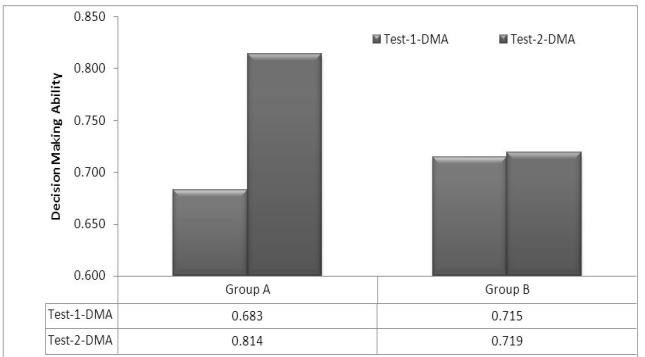
It was found that the average Intelligence Quotient of Group A soared at a significantly higher rate as compared to that of group B after 3 months.



	Group A	Group B
Test-1-FF	112.222	106.980
Test-2-FF	124.795	107.869

Fig. 4 Difference in FF of respondents in Test 1 & Test 2

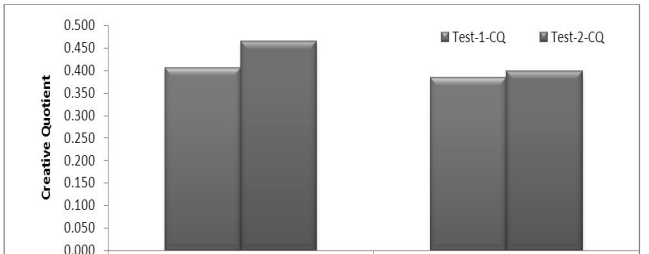
It was found that the elevation in the average Focus Factor of group A was at higher rate as compared to that of group B after 3 months



	Group A	Group B
Test-1-DMA	0.683	0.715
Test-2-DMA	0.814	0.719

Fig.5 Difference in DMA of respondents in Test 1 & Test 2

It was noticed that the increase in the average Decision making ability of group A was higher as compared to that of group B after the period of three months..



	Group A	Group B
Test-1-CQ	0.406	0.383
Test-2-CQ	0.464	0.399

Fig. 6 Difference in CQ of respondents in Test 1 & Test 2

The results indicated that the increase in Creative Quotient of the students in Group A was quite higher than that of Group B

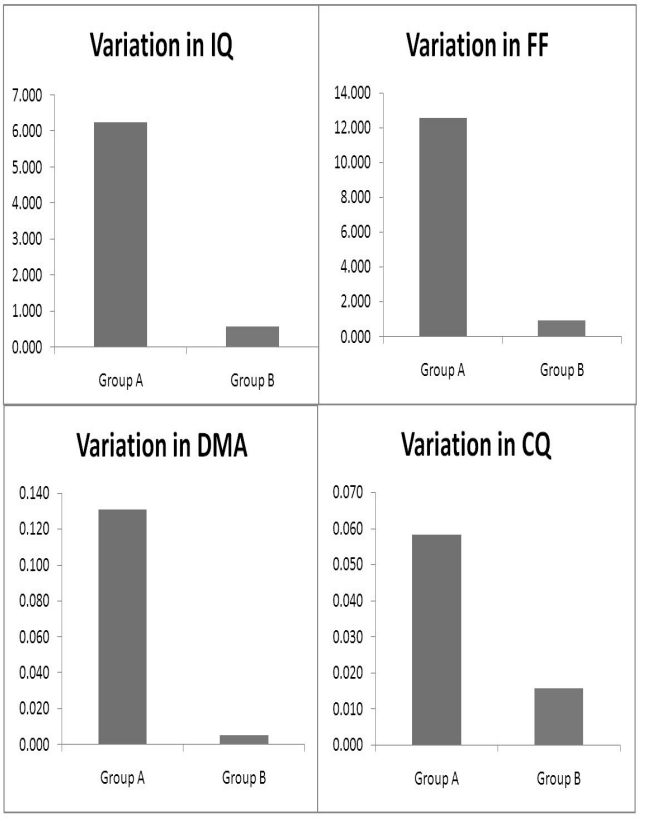
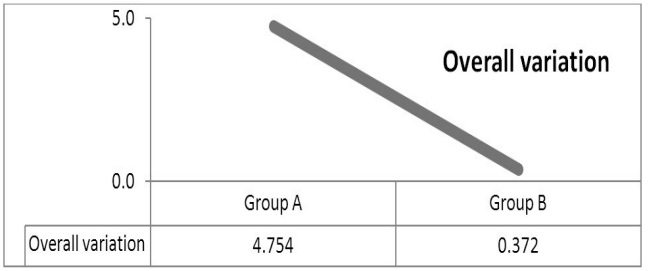


Fig. 7 Variations in IQ | FF | DMA | CQ of Group A & B in Test 1 & Test 2



	Group A	Group B
Overall variation	4.754	0.372

Fig.8 Overall Variation in cognitive enhancement of Group A & B in Test 1 & Test 2

With Special reference to Aananya, Shaleen and Achitya

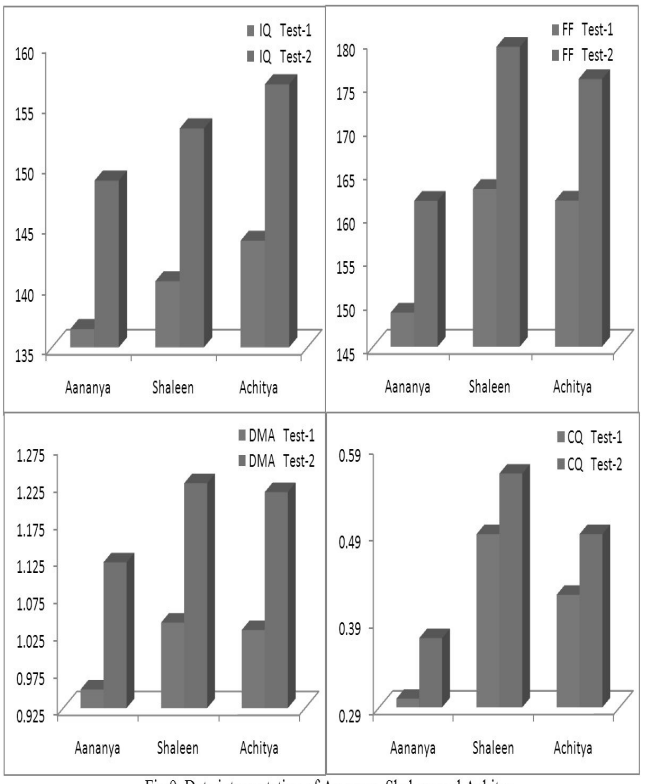


Fig.9 Data interpretation of Aananya, Shaleen and Achitya

As the customized solutions were assessed and it was found that the highest appreciable work was done by the above three. In corroboration with the same, the results indicated that the Cognitive abilities including IQ, FF, DMA and CQ of these students boomed at the highest pace.

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