

An Empirical Analysis of Complete Intelligence Quotient (CIQ) and Academic Performance for Secondary School Students

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Abstract—Students are the base of our education system. Thoughts and conduct play an important role in influencing physical & mental health, learning process, and consciousness of a student. As all students are different, they should get chance to develop their qualities according to their potentials. All students are different and unique; have different levels of understanding and remembering information; some do not apply, analyse or evaluate that information. Although teachers nurture the intelligence of students; adequate attention is not given to their fitness, emotions and consciousness. Intelligence may help students in acquiring subject knowledge but complete intelligence can enrich their learning proficiency along with their potential achievements and balanced life. The main purpose of this research is to establish the understanding of Complete Intelligence Quotient (CIQ) of secondary school students and to determine the relationship between CIQ and academic performance of students. For this purpose, a sample of 454 students from secondary schools located in Navi Mumbai, Maharashtra, India has been taken. In this study a self-made tool 'Complete Intelligence Quotient Test (CIQT)' in the form of questionnaire is designed for collecting the data regarding various CIQ dimensions, using five Point Likert-type scale. Collected data is analysed using standard deviation, reliability test, regression analysis and ANOVA. The findings are established and tabulated from the analysed data. The findings show that CIQ is a good predictor of academic performance of students and there is a significant correlation between CIQ and academic performance of students.

Keywords: Complete Intelligence Quotient (CIQ), intelligence, emotions, consciousness, academic performance.

1. INTRODUCTION

Every individual is unique and has own differences and similarities which identify everyone's personality. For example, a student can be intellectually high in academics, but poor in physical fitness, there may be someone who is emotionally high and physically strong, but poor in intelligence. Therefore, student life is not only about going to

school regularly and attending all the classes, moreover they need physical fitness, balanced emotions, sharp intelligence and perfect consciousness in order to maintain high academic performance and participate in all school activities effectively and efficiently. Body, Mind, Intelligence and Consciousness are the four aspects of life of a person which form a complete personality, and therefore contribute to Complete Intelligence Quotient of a person. Like every skyscraper has strong foundation before it comes up, our life needs a strong foundation for spectacular success. Student life is the best time to make a strong foundation. The strong foundation can be laid by focussing on these four areas namely Body (Physical Quotient), Mind (Emotional Quotient), Intelligence (Intelligence Quotient) and Consciousness (Spiritual Quotient).

Generally the questions arise that why some students fail to get good grades despite their great efforts? How some students are able to maintain their high grades throughout? What are the factors that affect their academic performance or what are the different aspects of intelligence that decreases or increases their academic performances?

It is commonly known that people with high IQ (Intelligence Quotient) accomplish better in their life. But recent researches indicate that people's emotional intelligence is a better predictor of success than their IQ (Goleman, 1995). According to psychologists, IQ constitutes only about 20% to the factors that determine life successes, which leaves 80% to other factors. Though previous studies are conducted on different factors that affect the academic performance of students, yet the Complete Intelligence Quotient (CIQ) aspect and its relation with the academic performance of secondary school students needs to be explored.

A dimensional analysis of CIQ and analysis of data collected for the sample population to establish correlation between the CIQ and academic performance form key aspects of the research work presented in this paper. This research study will help students in improving their academic performance and behavioural patterns.

2. OBJECTIVES

- To establish the understanding of CIQ of secondary school students.
- To explore the relationship between CIQ and academic performance of secondary school students.

3. DESCRIPTION OF CIQ MODEL

The CIQ model attempts to provide a framework for capturing all-encompassing intelligence of the students. This objective is achieved by identifying the success dimensions at four levels namely body, mind, intelligence and consciousness. The metrics corresponding to each of these four levels is defined as the four quotients namely - Physical Quotient (PQ), Emotional Quotient (EQ), Intelligence Quotient (IQ) and Spiritual Quotient (SQ).

3.1 Physical Quotient (PQ)

Physical Quotient is related to the body. It is an established fact that the physical activity is directly related to improved academic performance. But schools often cut down physical education programs to focus on the 'core academic subjects'. Benjamin A. Sibley and Jennifer L. Etnier (2003) recommend that physical activity may be related to improved cognitive and academic performance and provided evidence for the argument that physical activity should be a part of the school's daily activities for both its physical health and cognitive development. It has been stated that 60% of a person's health status is dependent on one's lifestyle (WHO, 2004). Healthy living habit that is depicting in the early childhood or youth would be adopted later in the adulthood (Landsberg et al., 2010). Thus school children should be educated about the importance of healthy lifestyle so that a healthy and responsible generation can be created. Earlier researchers (Roxana et al., 2014; Phongsavan et al., 2005) established that physical activity should be a part of the students' daily life for its physical fitness, emotional and intellectual benefits.

Physical Quotient (PQ) comprises of the five dimensions in this study as under -

Balanced diet: To keep body fit and healthy one should take proper nutritious diet which include all seven components; i.e., carbohydrates, fats, proteins, vitamins, minerals, roughage and water. It can be obtained by eating whole cereals, pulses, milk-products, fresh and seasonal fruits, vegetables, etc; including avoids junk-food.

Regular Exercise: Doing proper exercise like walking, running, cycling, swimming, yoga or sports activities regularly

keep students healthy. It develops strength, stamina, flexibility and makes them physically active. It boosts the body as well as mind of a student.

Sufficient rest: Sufficient rest helps in rejuvenation of the body and maintenance of wear and tear of the body cells, tissues, etc. Proper rest makes the person always alert in the discharge of his duties.

Hygiene: Hygiene is a set of health practices. According to the World Health Organization, "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." It is said that "Cleanliness is next to Godliness", so one should follow cleanliness not only in the mind and body but also in one's actions and surroundings.

Peacefulness: Peacefulness is a quiet and restful condition. It can also refer to an absence of conflict or violence. Peacefulness in mind through relaxation and recreation results in perfect health.

Physical fitness promotes a holistic approach in the development and success of a person. This emphasizes that the body and mind are one entity that if anything happens to one will affect the other.

3.2 Emotional Quotient (EQ)

Emotional Quotient is related to mind or emotions. It is about recognizing and labelling one's feelings. When feelings become deep and energized, they become emotion. It is known that emotions are complex states of feeling that result in physiological changes which influence the thought and behaviour of the individual. "Mind is restless, turbulent, obstinate and very strong; to control it is very difficult" (Bhagvad Gita 6.34). "The nature of mind is flickering and unsteady. The obstinate mind can be controlled by suitable practice and detachment of that object or activity" (Bhagvad Gita 6.35). Positive emotions such as love, motivation, appreciation, delight, self control, a sense of fulfilment, peace, awareness and happiness are associated with positive state of mind and good health. Similarly, negative emotions like anger, failure, fear, disappointment, frustration, guilt, resentment, dependence, depression, loneliness are associated with negative state of mind and unhealthy physiological functioning (Herbert & Choen, 1993). Failure of emotional self-management leads to significant negative influences on physical and mental health (Salovey, 2001). The mind helps in removing real enemy inside us like anger, envy, illusion, hate, greed, etc. "For him who has conquered the mind, the mind is the best of friends; but for one who has failed to do so; his mind will remain the greatest enemy" (Bhagvad Gita 6.6).

All our actions are regulated by our emotions. We can change our emotions by changing our thoughts. Goleman (1995) formulated Emotional Intelligence (EI) into five components in the classic model as - self-awareness, self-regulation, motivating-oneself, empathy, and handling relationship. Salovey and Mayer (2000) identified four different factors of

emotional intelligence as the ability to perceive emotion, integrate emotion to facilitate thought, understand emotions and to regulate emotions to promote personal growth. Goleman (2001) graded the emotions in two broad dimensions: awareness and management of one's own emotions and awareness and management of other's emotions. The first dimension includes self-regulation abilities and the second includes social skills. (Mayer, Salovey, Caruso, & Sitarenios, 2003) illustrated that 'Perception of Emotion', includes both awareness of one's own emotions and awareness of others' emotions; similarly, 'Management of Emotion', covers both management of one's own emotions and that of others. Zins, Weissberg, Wang, and Walberg (2004) found that social and emotional learning program improves students' attitudes, behaviours, and academic performance. Goleman (2005) claimed that EI accounts for 80% of life success and that it outperforms IQ in predicting academic achievement. Waterman, along with other critics, argued that writers are not always clear about these different distinctions and meanings when they use the term 'emotional intelligence' (D. Goleman & Roger P. Weissberg, 2006). Emotionally intelligent person can motivate himself and others which produces better results at work and in personal life. Hosseini et al. (2010) concluded that adolescence period is the best time to develop positive emotions.

Emotional Quotient is measured along the following five dimensions in this study.

Balanced Relations: It means being able to keep good relations with others, family members, which are important source of our mental and social support. It includes managing relations by loving exchange, revealing one's mind in confidence, inquiring confidentially, offering and honouring food, sharing; celebrating success, occasions, festivals, etc. One should speak truthfully, pleasing and in such a way that does not agitate the mind of others.

Motivation: It is the ability to inspire, influence, give purpose and direction to one-self. This can be achieved by association and conversations with successful people, following foot-steps of highly successful people, avoid associating with negative people and by self-regulation.

Enthusiasm: Enthusiasm means actions which bring the success. A proverb "Nothing can dim the light which shines from within" explains that an enthusiastic person can easily get the success. It involves positive attitude, excitement, recognizing emotions within us and being able to respond to them appropriately.

Endurance: Endurance keeps calm under stressful situation. It has three steps namely- patience, perseverance and persistence. It includes stamina, steadfastness and determination. There may be failure in some efforts, but one should not feel sorry for that; he should make progress with stamina and pursue goals with persistence despite obstacles and setbacks.

Meditation: It helps us in recognizing one's likings, disliking, desires, thoughts, emotions and their effects, self-confidence, self-reflection and self-awareness. It does not stop bodily activities rather uses 5-10 minutes of silence for self, focus and concentrates on goals, tuning into true feelings. It develops one's identity, emotional stability and power to control anger.

Research on EQ has left no doubt that these skills are vital for personal, educational and professional success. Emotionally balanced people are not only skilful in perceiving, understanding and managing their own emotions, they also are able to anticipate these skills to the feelings of others.

3.3 Intelligence Quotient (IQ)

Intelligence Quotient is generally thought of our analytical, mathematical and our linguistic intelligence. It is related to cognitive intelligence; i.e. ability to analyze, prioritize and self-assessment. Howard Gardner in his book *Frames of Mind* (1983) listed seven different types of intelligences. These are Linguistic, Logical (mathematical), Musical, Bodily (kinaesthetic), Spatial, Interpersonal and Intrapersonal. Initially it was perceived that IQ would be a strong analyst of success in careers; but in fact, it has turned out to be a weak predictor of success. Psychologists found that IQ constitutes only about 20% to the factors that determine life successes. It is generally known that the people, who are academically brilliant, are not socially successful in their personal relationships or at work. Sometimes mind overcomes the intelligence, although the mind is supposed to be subservient to the intelligence. Intelligence is supposed to direct the mind, but the mind is so strong and obstinate that it often overcomes even one's own intelligence (Bhagvad Gita 6.34). Nathawat's (2001) described that intelligence quotient is important for entrance in educational institutions, emotional quotient is essential for success in life and spiritual quotient is useful for significant life.

IQ comprises of the following five dimensions -

Visualization: Goal-setting, planning, execution, time-management and monitoring are a part of visualization. A goal can be defined as a future state that an individual strives to achieve. Setting goals serve four basic functions; they motivate and inspire students, provide guidance and direction, facilitate planning, evaluate and control.

Self-Study: It includes acquiring in-depth knowledge, resourcefulness, and expertise in concerned field, engage in the study of literature for cultivation of spiritual knowledge, using language reading and writing both effectively.

Critical thinking: It is an ability to analyze information, reasoning and experiences in an objective manner. It is the power of developing logical thoughts, aptitude, wisdom, insightfulness and understanding the circumstantial environment of place, time and object.

Creativity: It is the ability to solve problems, generating new ideas, inquisitiveness, taking initiative, skill sharpening as musical, verbal, visual, kinaesthetic, performing arts. Many researchers agree that people with positive attitude can develop problem-solving skills and take good decisions quickly.

Self-assessment: It involves knowledge of the self, understanding self-strength, weakness, opportunities available, achievement orientation and adapting to changing circumstances.

IQ thus enables us to explore the available alternatives and various consequences of our actions. Students who have high IQ are generally able to concentrate easily in doing anything.

3.4 Spiritual Quotient (SQ)

Spiritual Quotient refers to the skills; abilities required to develop and maintain good relation with all being and succeed in meaningful life. Besides IQ, SQ is very important for predicting academic performance of students. Zohar and Marshall (2000) define Spiritual Intelligence (SI) as “the ability to find meaning, purpose and values in our life, connecting our actions and lives to a wider, richer, meaning-giving context”. Scholars agree on the fact that physical intelligence is about body awareness, cognitive-analytic intelligence is about thinking, emotional intelligence is about feeling, and spiritual intelligence is about living being. In a statistical analysis Richard Boyatzis, Goleman, & Rhee (2000) supported collapsing the five domains into four: Self-Awareness, Self-Management, Social Awareness, and Relationship Management. Western authors Danah Zohar and Ian Marshall (2000) emphasize that SQ is our ultimate intelligence; IQ and EQ are an integral part of SQ. According to Sisk and Torrance (2001), Spiritual Intelligence is the ability to use a multi-sensory approach to problem solving and to learn to listen to your inner voice. According to Wolman (2003), each of us possesses Spiritual Intelligence and we have the capacity to think with our souls. According to Stephen Covey (2004) Spiritual intelligence is the central and most fundamental of all the intelligences, because it becomes the sources of guidance for the others. The school of education of Stanford University, Canada (2012) study specified practical impact in educational controls, to recognize and reinforce the thinking style which is closely associated with spiritual intelligence. WHO has categorized most important 10 life skills under three extensive groups: Thinking skills (Self awareness, Critical thinking, Problem solving, Decision making, and Creative thinking), Social skills (Effective Communication, Empathy, and Interpersonal relationships), Emotional skills (Dealing with Emotions and Coping with stress). Cindy Wigglesworth defined Spiritual Intelligence as “the ability to behave with Compassion and Wisdom while maintaining inner and outer peace (equanimity) regardless of the circumstances.” SQ allows the integration between

interpersonal and intrapersonal relationship in order to surpass the gap between other and self.

SQ encompasses five dimensions in this study.

Social awareness: Social awareness is the ability to sense, understand and react to others’ emotions while communicating and comprehending social networks. A person is happy means he has harmonious and positive relations with others in the environment. Science has shown that gratitude is a single largest factor of human well being than any other factor. When we pay our gratitude to those who did something for us, it makes a positive ambience.

Fearlessness: It is the ability to express ourselves with confidence, courage and tranquillity. It is about being able to express our opinions, desires, needs and fears. It enables us to ask for advice and help in a time of need.

Integrity: It means one should offer respect to God, parents, teachers, elders, etc. It enlightens the truthfulness, faith, honesty, obedience, trust, reliability, sincerity, acceptance, purification of one’s existence, gentleness and simplicity.

Deep Empathy: Empathy is an essential building block for successful interpersonal relationship. It helps in generating compassion, kindness, sympathy, tolerance, responsiveness, harmony with all the human beings.

Consciousness: It is the ability to understand other peoples’ needs, feelings and desires and reciprocate with love and concern. It includes responsibility, equality, non-enviousness, forgiveness, self-realization, co-operation and happiness.

Those with high SQ change the rules; work effectively in changing situations by playing with the boundaries, break through obstacles.

A significant positive relationship indicates that the four quotients are interrelated with each other; disturbance or imbalance in one area will disturb and create adjustment problem in other areas also. When the person is regulated in all his work, speech, one’s existence and all other activities, there is peace and happiness for him.

All four intelligences play an important role for secondary school students. If students are physically fit, emotionally balanced, intellectually sharp, and spiritually strong; they will be able to deal positively with all the aspects related to health, mind, intelligence and consciousness. Thus all four intelligence play an important role for the better future of our students and nation in a broad spectrum.

4. METHODOLOGY

4.1 Sampling Method and Respondents

The present study is carried out on 454 students within the age group of 14 to 16 years studying in IX and X standards from randomly selected secondary schools situated in Navi Mumbai, Maharashtra, India. 31 students didn’t provide the

complete information and hence were excluded from the analysis.

For the present study the investigator used a Complete Intelligence Quotient Test (CIQT) using 5-point Likert-type Scale such as “Never, Occasionally, Neutral, Often, Always” to assess the CIQ of the secondary school students. The CIQT in the form of a questionnaire consists of 40 statements and students have to indicate the option depending upon the extent to which it is true for him to each of the statements. The academic performance of the students was acknowledged by their marks/percentage obtained in their regular annual exams. The test measures 20 dimensions of four components, i.e. PQ, EQ, IQ, SQ to determine the significant relationship between their academic performance and CIQ of students. While constructing statements for each of these areas due care was taken to make use of the simple language and provide well-defined purposeful statements to the respondents for the assessment of their CIQ. The investigator herself administered the test in the selected schools after giving proper instructions.

4.2 Data Analysis and Findings

Descriptive statistics and statistical analyses are performed with Microsoft excel software. Descriptive statistics (e.g., Minimum, maximum, mean, standard deviations, etc.) and inferential statistics are used to analyse the data. Cronbach’s Alpha test is conducted to verify the internal consistency and homogeneity of the model. Analysis of Variance (ANOVA) is used to determine significance of the analysis.

4.2.1 Demographic Information

Table 4.2.1 details the demographic information of the data collected.

Table 4.2.1 Distribution and percentage of students according to gender, age, and percentage of marks (n=454)

Students Profile	Frequency	Percentage (%)
Gender		
Boys	260	57.3
Girls	194	42.7
Age		
14 - 16	454	100
Percentage of Marks		
Low (30 – 60)	28	6.2
Average (61 – 75)	167	36.8
High (76 – 99)	259	57.0
Total	454	

4.2.2 Reliability Statistics

Table 4.2.2 shows the reliability analysis of the dependent variables. As shown in the table below, Cronbach’s Alpha value of 0.84354 shows a high internal consistency of the model and therefore serves as a positive indicator.

Table 4.2.2 Reliability Analysis

Variables	Cronbach's Alpha
Complete Intelligence Quotient (CIQ)	0.84354

4.2.3 CIQ Level among Students

The answers in the questionnaire require the students to give their response on a 1 to 5 point Likert-type scale. In this study, students’ responses with a mean of 0.00 to 2.99 are considered low, 3.00 to 3.99 are considered as moderate while responses with a mean score of 4.00 to 5.00 are considered as high.

Table 4.2.3 Minimum and Maximum value of CIQ, Mean and Standard deviation,

Variables	Minimum	Maximum	Mean	Std. Deviation
Complete Intelligence Quotient (CIQ)	2.63	4.95	4.0643	0.4375

Table 4.2.3 above shows the overall mean score of CIQ among the students as 4.0643 which reveals that the students have high level of CIQ.

4.2.4 Relationship between CIQ and Academic Performance

The data has been analysed using ANOVA. ANOVA is used to test the overall validity of the model. The significance F is the p-value for CIQ which is less than 0.05, strongly suggests that CIQ has correlation with the percentage of marks.

Table 4.2.4 ANOVA results

Model		Sum of Squares	df	Mean Square	F	Sig. F
1	Regression	2109.124	1	2109.12	15.83	0.0000
	Residual	60219.84	452	133.2		8
	Total	62328.97	453			

The findings of the study clearly indicate that there is strong correlation between Complete Intelligence Quotient and academic performance of secondary school students.

5. CONCLUSION

Careful analysis and interpretation of data has revealed following conclusions:

The Complete Intelligence Quotient is significantly related to academic performance in secondary school students. Students with high CIQ have good academic performance than students with low CIQ.

The research study established that CIQ is vital for personal as well as academic success. It is found that the CIQ concept will

not only benefit individuals, but it will also benefit their family and community. CIQ is applicable to everyone for accelerated success in academics, sports, co-curricular activities, career and overall development of personality. Efforts to improve CIQ of students will thus result into their improved academic performance and behaviour.

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