

EPC-TKS 2013

Consciousness Quotient Inventory administration on adolescents: difficulty level assessment

Ovidiu Brazdau^a, Sadhna Sharma^b, Sona Ahuja^{c*}

^a *Consciousness Quotient Institute, 1 Free Press Square, Offices C1: 310-313; Bucharest 013701, Romania*

^{b,c} *Dayalbagh Educational Institute, Faculty of Education, Dayalbagh; Agra 282005, India*

Abstract

The purpose of this study is to examine the difficulty level of the Consciousness Quotient Inventory (CQ-i) for adolescents. The previous validation of the CQ-i includes its administration in adults only; thus, in order to determine whether CQ-i can be administered in adolescents as well, the difficulty levels of the items were analysed using a scale from very easy to very difficult. The study is based on 100 participants (aged 13 to 17), from different schools in Agra, India. The results indicate that the overall difficulty level of CQ-i was easy to moderate. An age-wise analysis indicates that the difficulty level is relatively higher for younger adolescents (aged 13-14) as compared with older ones (aged 15-17). Some specific areas of difficulty and the limitations of the CQ-i in Indian contexts are discussed.

© 2014 The Authors. Published by Elsevier Ltd. Open access under [CC BY-NC-ND license](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Selection and peer-review under responsibility of Petroleum-Gas University of Ploiesti, Education Sciences Department.

Keywords: Consciousness Quotient; CQ; Consciousness Quotient Inventory; CQ-i; Difficulty Level; Adolescents.

1. Introduction

No other mental phenomenon so thoroughly resist informative explanation as does consciousness (Rosenthal, 2010). As Baars (1997) puts it, “consciousness seems to be the biggest and loudest phenomenon we can possibly study, as it is the study of [the] human mind by the human mind.” Mysterious, subjective, perplexing, most obvious and undefinable are certain terms which come to mind, along with the term consciousness. In the words of Gulick (2004), “the problem of consciousness is the central issue in the current theorizing about the mind and perhaps no aspect of mind is more puzzling than consciousness.” Brazdau (2008) has defined consciousness as “the level of consciousness (or the level of being conscious) that is experienced in the morning, ½-1 hour after we are awake,

* Corresponding author: Ovidiu Brazdau, Tel.: +4021-668-5112

E-mail address: ovidiu@consciousness-quotient.com

after a refreshing sleep, without being exposed to any significant stimulus such as coffee, TV, radio, music or talking.”

The role of consciousness in education and academic achievement is very important. The Consciousness Quotient, similar to IQ, is also a predictor of academic achievement in students (Brazdau & Mihai, 2011). Highlighting the role of consciousness for students, it is considered that students' affective domain together with their consciousness, their awareness and their feelings, determine their degree of creativity, confidence and motivation, which are vital and fundamental to education (Sharma, 2008).

Consciousness has been positively found to affect a considerable number of academic variables, such as learning, attention, perception (Grossberg, 1999), creativity and imagination (Das & Sharma, 2013). Emphasizing the importance of consciousness in education, Dean (2012) says that “increasing academic demands in modern perspective can only be met if the full potential of the child can be utilized by raising his consciousness which further improves qualities such as alertness, creativity, intelligence, receptivity, and breadth of comprehension among students.” An experimental study has revealed that the orientation and detailed discussion on the science of consciousness resulted in a significant increase in the emotional intelligence of teacher-trainees (Shivhare & Sharma, 2008).

In order to be used in the educational field - for primary and secondary education - any psychological assessment tool must be subject to a complex evaluation. In this paper, our objective is to evaluate whether the Consciousness Quotient Inventory can be used for adolescents and to explore if the items refer to situations and behaviours that are easy to understand and are related to adolescents' daily life.

The Consciousness Quotient Inventory provides a comprehensive tool to assess consciousness through the exploration of six primary factors: (1) Physical Consciousness: this refers to the ability to be conscious of the body and the organism, and of the physical elements of the environment (8 items); (2) Emotional Consciousness: this describes the ability to be conscious of your own emotions and feelings, and generally of being conscious of any emotional feeling (10 items); (3) Mental (Cognitive) Consciousness: this refers to the ability to be conscious of one's own ideas, and of the mental stream generally (9 items); (4) Spiritual Consciousness: this refers to the ability to be conscious of oneself as a part of the universe, and describes the ability to be conscious about the multiple connections with surrounding life (13 items); (5) Social – Relational Consciousness: refers to the ability to be conscious about human relationships and the connections with the people you interact with (9 items); (6) Self-Consciousness (Consciousness of the Self or Self-awareness): this refers to the ability to be conscious about your own person, your own self; this factor describes the reflexivity of the human being, of being able to look upon oneself in an objective way (13 items).

The Reliability of CQ-i is 0.92 (Cronbach's Alpha) for N=62. The concurrent validity has been explored by using inventories such as CPI, EQ-i, NEO PI-R, GAMA and MSCEIT (Brazdau, 2013). The recommended age group for the administration of CQ-i is above 18 years. In order to examine whether the constructs assessed in CQ-i are equivalently valid for a lower age group (i.e., adolescents), it was decided to study the responses of adolescents (aged 13-17) towards CQ-i in the form of a difficulty level assessment.

We assumed that the difficulty level was dependent either on their familiarity with the particular situations assessed by CQ-i or by the concepts used in the items. We were interested in the general evaluation of the difficulty level and, depending on the results, we will refine the study.

2. Method

2.1. Participants

In order to control the effect of extraneous variables, such as socio-economic status and family background, the researchers collected data from 180 students of different classes (8th to 10th grades, aged 13 to 17) from three different types of schools in Agra, India, out of which 100 responses were included in the study. The responses of 80 participants were discarded on the basis of analyses that reflected incomplete responses to some items and other reasons, as discussed in the next section. The ratio of boys vs. girls in the study is 12:13 (48 boys and 52 girls).

2.2. Procedure

The difficulty level for each item of CQ-I was evaluated using a five-level Likert scale, from “Very Easy” to “Very Difficult”, scored 1 to 5. Before administration, the students were introduced to CQ-i, and the purpose of administration was explained to them. The researchers intentionally skipped the serial numbers of questions 28, 30, 39 and 42, but space for them was provided on the response sheet, and later on this strategy was used to identify the fake responses for the other respondents. In addition, the lie scale provided in the manual of the tool was used to demarcate the genuine responses from the fake ones.

In the first phase, data were collected from the students of two sections (having 45 students each) from the 10th grade of St. Conrad’s Inter College, Agra. Students from one section were strongly influenced, overestimated and were pressurized to finish the inventory quickly by their class teacher, who was present while the test was being administered. As a result, the responses of these students were discarded, sensing fake responses. All the responses of the students from the second section were genuine and true, except for three. Thus, overall, data were collected from 90 participants, of whom 42 were selected for the analysis.

In the second phase, data were collected from St. Francis School, where the tool was administered to 35 students from the 9th and 10th grades, out of which the number of genuine responses was just 20.

In the third phase, Hillman Public School was selected for data collection. The inventory was administered to 55 students from the 8th and 9th grades, out of which 38 genuine responses were included in the study.

Finally, the responses of 100 participants were considered and the rest were discarded on the basis of the analysis mentioned above.

3. Results

The average score for each item was calculated for 100 students and the results obtained are presented in Table 1.

Table 1. Average difficulty level for the CQ-i items

S. No.	Range of Difficulty Level	No. of Items	Item No.
1.	Very Easy to Easy	01	10 1,3,4,5,6,7,8,9,11,12,14,15,16,17,18,19 22,24,25,27,31,32,33,34,35,36,37,38,
2.	Easy to Moderate	48	41,43,44,45,46,47,48,49,50,51,52 53,54,55,56,57,58,59,60,61
3.	Moderate to Difficult	08	2,13,20,21,23,26,29,40
4.	Difficult to Very Difficult	0	

Eight items that were rated highest on the difficulty level scale (i.e., from moderate to difficult), and their difficulty level and the dimension of consciousness to which they belong are presented in Table 2. Two difficult items were each from self CQ and Social relational CQ, while the others were from physical, emotional, cognitive and spiritual each. Item no. 29 was rated as the most difficult.

Table 2. Items rated Moderate to Difficult

Item No.	Difficulty Level	Item	Factor
29	3.39	I notice the first signs of a cold straight away, even before the physical symptoms show up.	Physical CQ
20	3.21	I know the moments when my life partner is momentarily focused on priorities other than our relationship, even if they are not telling me.	Social relational CQ
13	3.12	When I meet a person, I know in advance whether or not I am going to like them, even before talking directly to them.	Emotional CQ
40	3.05	I regularly think about how I can contribute to the progress of humankind.	Spiritual CQ
26	3.04	I prepare before saying something and I assess how to say it, even if it relates to discussions on everyday topics.	Self CQ
23	3.03	When I meet my friends, I prefer to analyse the significance of an event, not the specific details of the event.	Self CQ
21	3.1	I usually analyse the reasons for being in relationships with various people.	Cognitive CQ
2	3.0	I know when I have to put on an act to create a different image other than my usual self in front of some people.	Social relational CQ

Further analysis was done by forming two groups: group 1 (N=40) from age group 13-14 and group 2 (N=60) with age group 15-17. Group 1 rated 14 items as difficult, which was an indicator of greater difficulty experienced by the younger population. The dimension-wise analysis of the difficulty level of the items rated 'difficult' by group 1 is presented in Table 3.

Table 3. Items rated as Difficult by Group 1 (age 13-14)

Item No.	Difficulty Level	Item	Dimension
2	3.39	I know when I have to put on an act to create a different image other than my usual self in front of some people.	Social relational CQ
23	3.33	When I meet my friends, I prefer to analyse the significance of an event, not the specific details of the event.	Self CQ
29	3.32	I notice the first signs of a cold straight away, even before the physical symptoms show up.	Physical CQ
18	3.26	When talking to someone, I look very closely at his behaviour and ascertain whether or not what they are saying is really what they are thinking.	Social Relational
40	3.22	I regularly think about how I can contribute to the progress of humankind.	Spiritual CQ
20	3.21	I know the moments when my life partner is momentarily focused on priorities other than our relationship, even if they are not telling me.	Social relational CQ
52	3.18	I notice when the people I am talking with try to conceal what they truly think.	Social- Relational
14	3.09	I realize immediately when I behave impulsively under some emotional influence.	Emotional CQ
15	3.08	I can see that someone is acting impulsively but they are not so in general; it's just an emotion of the moment.	Emotional CQ
46	3.08	I realize quickly if I have taken more than I can actually do.	Cognitive CQ

54	3.02	In my personal relationship, I realize which of my emotional patterns influence my behaviour.	Self CQ
13	3	When I meet a person, I know in advance whether or not I am going to like them, even before talking directly to them.	Emotional CQ
26	3	I prepare before saying something and I assess how to say it, even if it relates to discussions on everyday topics.	Self CQ
27	3	I try to understand other people’s idea about spirituality	Spiritual CQ

Group 2 (age 15-17) rated 6 items as ‘difficult’, which was less than the overall difficulty level. The effect of age was clearly seen upon the difficulty level rating, though most of the items rated difficult were common. The dimension-wise analysis of the difficulty level of the items rated ‘difficult’ by group 2 is presented in Table 4.

Table 4. Difficulty level for each factor of CQ-i

Factor	Average Difficulty Level N=100, age 13-17	Average Difficulty Level Group 1, N=40, age 13-14	Average Difficulty Level Group 2, N=60, age 15-17
Physical CQ	2.75	2.64	2.83
Emotional CQ	2.6	2.71	2.49
Cognitive CQ	2.55	2.61	2.49
Social-Relational CQ	2.55	2.60	2.50
Spiritual CQ	2.68	2.81	2.55
Self-consciousness	2.66	2.69	2.64

It was observed that the overall average difficulty level of all dimensions was similar. Physical CQ was rated as having the highest difficulty level followed by spiritual CQ, self-consciousness and emotional CQ, respectively, while cognitive and social-relational CQ were rated lowest in the difficulty levels. Further analysis showed that adolescents in age group 13-14 experienced greater difficulty across all dimensions except for physical CQ than did age group 15-16. In a further analysis, the items numbered 13, 20, 23, 26 and 29 were found to be common difficulty items in both groups. The dimension-wise analysis showed that group 1 (age 13-14) experienced greater difficulty in social-relational, emotional and self CQ, whereas group 2 (age 15-17) rated physical CQ as most difficult.

The exploration of the gender variable showed that boys rated nine items as difficult, whereas girls rated only five items as difficult (Table 5). Furthermore, dimension-wise analysis of the difficulty level for boys and girls is presented in Table 6.

Table 5. Difficulty level analysis for boys and girls

No. of Difficult Rated Items	Girls					Boys								
	5 items					9 items								
Item Numbers	13	19	20	29	58	2	20	23	26	27	29	40	44	54
Difficulty Level for Each Item	3.32	3.12	3.42	3.50	3.06	3.27	3.19	3.03	3.20	3.25	3.25	3.21	3.04	3.07

Table 6. Dimension-wise analysis of the difficulty level for boys and girls

Gender	Physical CQ	Emotional CQ	Cognitive CQ	Spiritual CQ	Social-Relational CQ	Self-consciousness
Boys	2.82	2.44	2.56	2.56	2.63	2.69
Girls	2.85	2.58	2.51	2.48	2.64	2.51

4. Discussion

The experience of administering the CQ-i on adolescents was a significant one. Interestingly, in the words of the participants, except for a few items they were able to comprehend them all and did not find the tool very difficult. Upon independent analysis of the CQ-i responses, it was found that younger students (13-14 years) rated more than twice as many items as difficult as rated by older ones (15-17 years). It was obvious that they experienced greater difficulty in responding.

The researchers interviewed 30 students (20 from age group 15-16 and 10 from age group 13-14) to understand their views regarding CQ-i. On asking whether they found certain constructs or situations unfamiliar, they answered that they marked such items as difficult which mentioned unfamiliar situations. Students from age group 15-16 said that they were able to comprehend almost every item but that they never experienced certain situations. The researchers concluded from this that there was no need to ask about the familiarity of situations separately. For example, item no. 3 (*I realize beforehand that I am going to get hungry*) is a very easy item to comprehend (from the students' point of view), but even then it is rated as 'difficult' by most of the students. Around 90% of the students said that they hardly experienced any realization of hunger or of getting cold before physical symptoms (Note that the most difficult item marked is item no. 29, by students of all age groups). Many students expressed doubts and confusion regarding the term 'Spirituality' and, two items, i.e., item no. 27 (*I try to understand other peoples' ideas about spirituality*) and no. 59 (*When I meet someone with a view about spirituality that is different than mine, I am curious and I ask questions to learn more*) were rated as 2.96 and 2.76 on the difficulty level respectively.

There are some limitations to CQ-I in the Indian context, such as that Indian teenagers rarely have experiences relating to a life partner or relationships in general. Thus, item no. 20 (*I know the moments when my life partner is momentarily focused on priorities other than our relationship even if they are not telling me*) does not fit. Furthermore, there are items that mention a change of concept regarding world, life, values and priorities. In Indian circumstances, concepts about the world and life together with the values and priorities of adolescents are still at a formative stage, so we can hardly expect changes in them.

We think that by making a few changes in the difficult rated items, CQ-i can be made suitable for adolescents. One way might be by giving examples and instances such as: 'I try to understand other people's idea about spirituality' could be replaced by 'I try to understand other people's idea about spirituality (Meaning of Life, God, Soul)' and others also in the same manner. Secondly, in India, the items could be presented in two languages (both English and Hindi) to facilitate easier comprehension by younger students.

References

- Baars, B.J. (1997). *In the Theatre of Consciousness; The global workspace of mind*, New York: Oxford University Press.
- Brazdau, O. (2013). *The Consciousness Quotient: introducing the consciousness experience as a research variable in psychological assessment*. Retrieved from <http://www.consciousness-quotient.com/what-is-cq/>.
- Brazdau, O. & Mihai, C. (2011). The Consciousness Quotient: a new predictor of students' academic performance. *Procedia Social and Behavioral Sciences*, 11, 245-250.
- Brazdau, O (2008). *Research on the consciousness experience. The Consciousness Quotient and CQ Inventory*. Doctoral dissertation, Romanian Academy of Science, Bucharest, Romania.
- Das, I. & Sharma, P. (2013). *Intuitive consciousness and creativity among university students*. Paper presented at Toward a science of consciousness Conference, India.
- Dean, A. (2012). *Consciousness based education: unfolding the genius of every student*. Retrieved from www.yrdsb.ca/Programs/PLT/Quest/.../2012AshleyDeansArticle.pdf.
- Grossberg, S. (1999). The link between brain learning, attention and consciousness. *Consciousness and cognition*, 8, 1-44.
- Gulick, V. R. (2004). Consciousness. In *Stanford Encyclopedia of Philosophy*. Retrieved from <http://plato.stanford.edu/archives/sum2011/entries/consciousness>.
- Shivhare, N. & Sharma, R. R. (2008). *Effect of science of consciousness on emotional intelligence of teacher-trainees*. Retrieved from <http://www.scribd.com/doc/7285189/Effect-of-Science-of-Consciousness-on-Emotional-Intelligence-of-Teachertrainees>.
- Rosenthal, D.M. (2010). *Explaining Consciousness*. Retrieved from <http://www.nyu.edu/gsas/dept/philo/faculty/block/M&L2010/Papers/Rosenthal.pdf>.
- Sharma, R.M. (2008). *Consciousness based education*. Retrieved from <http://hdl.handle.net/2139/8617>.