Teachers for the Knowledge Society

The consciousness quotient: a new predictor of the students' academic performance

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Abstract

The purpose of this study is to establish the practical usage of Consciousness Quotient in the educational psychology field. Basic hypothesis of this study was to determinate the incremental validity brought by the Consciousness Quotient in the prediction of academic performance. The study is based on a 138 participants from the Ecological University of Bucharest, Romania. The "Consciousness Quotient Inventory" (CQI) and "General Ability Measure for Adults" (GAMA) are used to evaluate the Consciousness Quotient and the Intelligence Levels. The results confirm the influence of Consciousness Quotient in the academic performance appraisal.

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1. Introduction

The consciousness experience is the most mysterious subjective phenomenon experienced by every human being, every day. The concept of consciousness and the topic of states of consciousness were debated in the last century by different scientific communities: psychology and cognitive science, philosophy, neuroscience, psychiatry, and lately by quantum physics (Cohen & Schooler, 1997; Hameroff, Kaszniak & Scott, 1998; Chalmers, 1996; Tart, 1975; Baars, 1986; Penrose, 1994; Wolman & Ullman, 1986). Yet, there is not a general theory regarding consciousness. Consciousness seems to be a result of all the sub-systems of a human being, instead of being generated by the brain or by a single part of the body. Neuroscience is one of the fields that studies consciousness and has the most scientific data regarding the topic of consciousness (Crick & Koch, 1995; Metzinger, 2002, Damasio, 1989). Yet, the consciousness topic seems to be hard to explore only from mainstream scientific perspectives, as the consciousness is a subjective experience and also the first-person approach seems to provide valuable information, but unfortunately the first person methods offers no scientific results, unless statistical analysis are provided (Varela & Shear, 1999; Dennett, 2001).

The research problems come from the methodological inability to isolate the consciousness as an individual phenomenon: "Consciousness has seemed to be different from all other scientific concepts; it has been extraordinarily difficult to treat it as a variable" (Baars, 1997). But the latest decades has proved that consciousness

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can be researched as a variable, and there are lots of studies using this approach. The conscious processes can be operationally defined as events that: can be reported and acted upon, with verifiable accuracy, under optimal reporting conditions, and which are reported as conscious (Baars, Banks, Newman, 2003).

In psychology, measuring the consciousness experience with assessment instruments and statistical methods has been a rare topic, maybe because psychologists could not find a method to reach a satisfactory level of significance of the results (Natsoulas, 1990). Yet, there are some assessment instruments that has been in use for some time with good results in evaluating some aspects of the conscious experience: Self-Consciousness Scale (SCS) developed by Fenigstein in 1975 (Fenigstein, Scheier, Buss, 1975), Psychological Well-Being Scales (Ryff, 1995), The Phenomenology of Consciousness Inventory (Pekala, 1982), Mindfulness Attention and Awareness Scale-MAAS (Brown and Ryan, 2003), Freiburg Mindfulness Inventory (Walach et al., 2006), Toronto Mindfulness Scale (Bishop et al., 2004), The Kentucky Inventory of Mindfulness Scale (Baer, Smith, Allen, 2004).

Some other assessment instruments have to do with self-evaluation of one's conscious states, such as the Revised NEO Personality Inventory (Costa & McCrae, 1992), or the Emotional Quotient Inventory (Bar-On, 1997).

The Consciousness Quotient (CQ) Theory and the CQ Inventory are the latest arrivals in the research of consciousness. The CQ theory was introduced in 2008 by psychologist Ovidiu Brazdau and presented at the Toward a Science of Consciousness Conference 2009. He defined the Consciousness Quotient as "the level of consciousness (or the level of being conscious) that is experienced in the morning, ½-1 hour after we are awake, after a refreshing sleep, without being exposed to any significant stimulus: coffee, TV, radio, music, talking etc." (Brazdau, 2009).

In other words, the consciousness quotient is the general level of being conscious / aware throughout a day, in regular life conditions. Brazdau explains that main mechanism of all the states of consciousness is the expansion / contraction of the consciousness field. Some of us have a larger level of consciousness, described by a higher CQ, when they can access and process plenty of information. Some of us have a lower CQ, and can access and process less information. Throughout a day the consciousness states may be different, but overall the general CQ is the same. In some moments we are more conscious about our feelings, but less of our thoughts or our own being. Our CQ shows only the degree of what we are able to access simultaneously. In a regular state, increases in consciousness of one field (e.g. emotional field) can only be obtained " stealing" consciousness resources from one side (e.g. social-relational field) and offer more consciousness to another field of life (e.g. emotional). In a way, it is similar to attention: we cannot focus on more than a few elements (Brazdau, 2008).

The Consciousness Quotient Inventory is composed of 6 dimensions of the conscious experience, which forms the Consciousness Quotient: physical, emotional, mental (cognitive), spiritual, social-relational and self-consciousness. These six dimensions are the main six factors of the Consciousness Quotient Inventory. CQI has 62 items that describe these dimensions, scored with a Likert scale with 5 degrees, from 1 to 5 points, showing the gradual agreement of the subject for each item: Strongly disagree, Disagree, Neutral, Agree and Strongly Agree.

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

Some other facets of the conscious experience can be explored with the CQI, that forms the 9 secondary factors of the Consciousness Quotient: (1) Internal State Awareness: refers to the ability of being conscious specifically about the inner changes; (2) Self-Reflectiveness: refers to the ability of being conscious in a reflective way about you own person; (3) Mindfulness: refers to a way of looking at yourself and your environment in a non-judgmental way; (4) Autonomy: refers to the degree of autonomy- the individualization of a person; in other words, the ability to function autonomous, without requiring external support; (5) Personal Growth: refers tot the ability of being conscious about the evolutionary transformation one person goes through; (6) Positive Relations with Others: is the ability of being conscious about inter-personal relationships; (7) Purpose in Life: refers to existence of a purpose in

life. Purpose is the context of meaning within which one makes life choices; (8) Verbal Expression: describes the ability of expressing the conscious content through verbal communication; (9) Openness toward new experiences: refers to the ability of being conscious about new information; generally it is the ability of being open to any new things happening to one.

This study represents a pilot direction for the CQ usage in the educational field. Due to its importance in human psychology and individual differences, the assessment of CQ leads inevitably to the educational field. Because of the CQ recency in psychology, the corolar literature reviewing the construct is for the moment insuficient, but there is a positive tendency in this direction.

Other variable take into consideration in this study is the Intelligence Quotient, as the the best predictor of performance in general, and especially in the academic field.

Valid measures of IQ have been available since the early 1900s, making possible serious research into the correlates and consequences of intellectual ability. Academic success predictors usually consist of cognitive measures, pertaining to mental ability or intelligence; and non-cognitive measures, especially personality traits.

Results, while occasionally varied, have continued to support the conclusion that both cognitive ability factors and certain personality traits consistently predict academic performance (Dyer, 1987; Hoschl & Kozeny, 1997; Mount & Barrick, 1991; Mouw & Khanna, 1993; Paunonem, Rush, & King, 1994; Rau & Durand, 2000; Rothstein, Paunonem, Rush, & King, 1994; Wolfe & Johnson, 1995).

The direct relationship between intelligence and academic achievement has also been widely studied (Ediseth, 2002; Gagné & St Père, 2002; Kossowska, 1999; Parker et al., 2004; Smith, Smith, & Dobbs, 1991; Stipek & Gralinski, 1996).

Intelligence, as measured by various intelligence tests, was found to be the best predictor of students' grade point average (GPA) in all grades. Deary, Strand, Smith, & Fernandes (2007) found a strong and positive relationship between intelligence and academic achievement.

In consequence, it is well known the influence of intelligence in the prediction of academic performance, so the purpose of this study is to identify the role of conciousness too.

The main hypothesis of this study is:

Hypothesis 1: Consciousness will significantly predict the academic performance.

For obvious reasons, it is developed a more accurate hypothesis that involves the general mental ability (Mathiasen, 1984).

Hypothesis 1a: Consciousness will signifcantly predict the academic performance, in relation with intelligence.

Also in this study it was analised the particular role of the CQI subscales in the prediction of academic performance, but the general CQ score was considered more important, disregarding the scores of the subscales. The results concluded that this assumption was right, the CQ general score (and not the subscales) is a better predictor for academic performance.

2. Methods

2.1. Participants

Participants are students from the Ecological University of Bucharest. There are approximately 450 students in the Faculty of Psychology, almost 33% of them being included in this study based on a convenience sample. The study consists of 138 participants (82% female and 18% male) with the age of them are between 18 and 58 (M=31.23, SD=11.51). Every participant is studying in full time programme. The students accepted to participate to the study voluntary.

2.2. Procedure

Participants completed the CQI (Brazdau, 2008) and the Intelligence Test, GAMA (Naglieri & Bardos, 1997) during the classes, this being a relevant aspect of their test performance. Group testing has been applied.

GAMA (General Ability Measure for Adults) is assessing the general mental ability using items that require the use of logical and nonverbal reasoning, in solving problems with abstract figures and designs.

Due to the use of nonverbal items, GAMA provides a measure of intellectual ability, relevant for individuals coming from different backgrounds. The test is divided into 66 items, divided into four subscales: Matches (MAT), analogues (ANA), sequence (SEQ) and construction (CON). GAMA is limited time designed test, the application takes 25 minutes.

The test provides a general IQ score (M = 100, SD = 15) and scores of the four subscales. The test is validated in the context of educational psychology.

The CQI (Consciousness Quotient Inventory) evaluates the global consciousness level of an individual. The background of this construct is based on 6 factors: Physical Consciousness Emotional Consciousness, Cognitive Consciousness, Spiritual Consciousness, Social – Relational Consciousness, Self-Consciousness; and also provides a general consciousness quotient. The inventory has 62 items, with the responses evaluated on a 5 steps Likert Scale.

For the 62 items was performed a reliability analysis, achieving a more than satisfactory internal consistency (N=62, Cronbach's Alpha =.920). CQI is now in the stage of full validation in the educational field.

The academic performance was quantified using an internal criterion provided by the University (grades).

The descriptive analysis for this constructs are presented in table 1.

Table 1

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
CQ	138	125	175	300	244.30	23.254	540.753
AP	138	3.67	6.00	9.67	8.0341	.85522	.731
IQ	138	54	66	120	93.75	13.008	169.213

3. Results

Preliminary analysis revealed no significant difference between the number of male and female involved in this study. For this reason the gender will not be discussed further.

Preparing the calculation of the influence of the Conciousness Quotient in the prediction of the academic performance, it was conducted a Pearson Linear Correlation.

Data analysis revealed a positive correlation between the global conciousness quotient and the academic performance. (Pearson r=.209, p<.05).

The intelligence quotient (Pearson r=.320, p<.01) is strongly related to the academic performance, which was expected since many studies have shown approximately the same level of correlation (Mathiasen, 1984).

It is important to mention that there are no significant levels of correlation between the CQ score and IQ (Pearson r=.137, p>.05). This result suggests that CQ and IQ are totally differently psychological constructs. This fact is important, because CQ represents a non-cognitive predictor of the academic performance.

As shown in the statistical analysis, students with higher IQ are more likely to have a better performance. (R^2=.102, $F(1,136)$=15.462, $p<.001$). Furthermore, the moderate correlation between the CQ and result of the academic performance criterion suggest that people with a high CQ can perform better to the exams than the students with a low CQ level.

The influence of the CQ in the prediction of the academic performance was tested using a linear regression analysis. The result of statistical procedure, suggest that only 4% of the variances of academic performance, could be explained by consciousness quotient (R^2= .044, $F (1,136) = 6.209, p<.017$). For that reason, it was conducted a simultaneous design that included the academic performance as a criterion and both intelligence quotient and the consciousness quotient, as predictors.

Table 2

		CQ	AP	GAMA
CQ	Pearson Correlation	1		
AP	Pearson Correlation	.209[*]	1	
GAMA	Pearson Correlation	.137	.320[**]	1

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

The results of the multiple regression analysis suggest that the CQ supplies an increment in the prediction of academic performance. ($R^2= .130$, $F (2,135) = 10.078$, $p<.001$). In conclusion, using both measurements, CQ and IQ, could better predict the performance in the academic field. The increment brought by assessing the Consciousness Quotient in the prediction of academic performance ($\Delta R^2=0.028$) is about 3% of variance. For this reason, the assessment of consciousness, has a moderate role in the prediction of academic performance, but a statistical significantly contribution ($\beta=.168$, $t (135) = 2.077$, $p<.04$).

4. Discussion

The purpose of this study is to identify the potential usages of the CQI in the context of educational psychology. From the statistical analysis, it was revealed that certain incremental validity is brought by the CQI in the prediction of academic performance.

This study is a pilot one, being the first study which used this instrument in this specific area.

There are some questions which are developed, based upon those results. When it comes to predicting student performance, does CQ outdo IQ? The statistical analysis revealed a correlation between CQ and IQ, with the specification that IQ is a more relevant predictor. These results suggest that indeed, Consciousness Quotient has a lower effect on academic performance than does Intelligence Quotient. An explanation may be that CQ assesses a non-cognitive ability. The same situation is with the Emotional Quotient (EQ), the scientific literature shows that CQ has a lower effect on academic performance than IQ (Gumora & Arsenio, 2002). This aspect offers a further research direction. CQ should be considered as a construct that could be used, along with others classical constructs like IQ, motivation, IQ Personality traits and other constructs able to predict performance (Busato et. al., 2000). This implies that CQ enlarges the appraisal of academic performance prediction and offers an alternative tool which can be used contextually.

This study's limitations consist, between others, in the non-probabilistic sample. It was chosen to use this type of sample because of the design economy. Also, another issue is the relative small number of participants and their volunteer participation, this also being caused by the design economy. Another possible latent variable of the study represents the non-homogeneity of the participant's age, because of the learning ability modification with age and also possible changes of the CQ with age.

The reverberation of this study in the appraisal of academic performance is moderate but it represents a different perspective. This approach could be related with others scientific perspectives from the educational psychology. Further research should be conducted in order to consolidate present study's results and reveal other CQ implications in the field of educational psychology.

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